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MIAMI INTERNATIONAL AIRPORT. DATA PACKAGE NUMBER 3. AIRPORT IMP--ETC(U)
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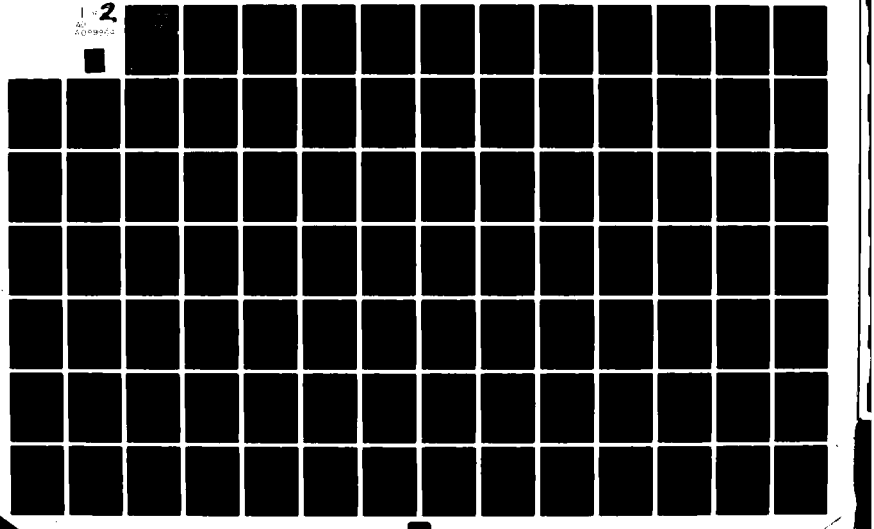


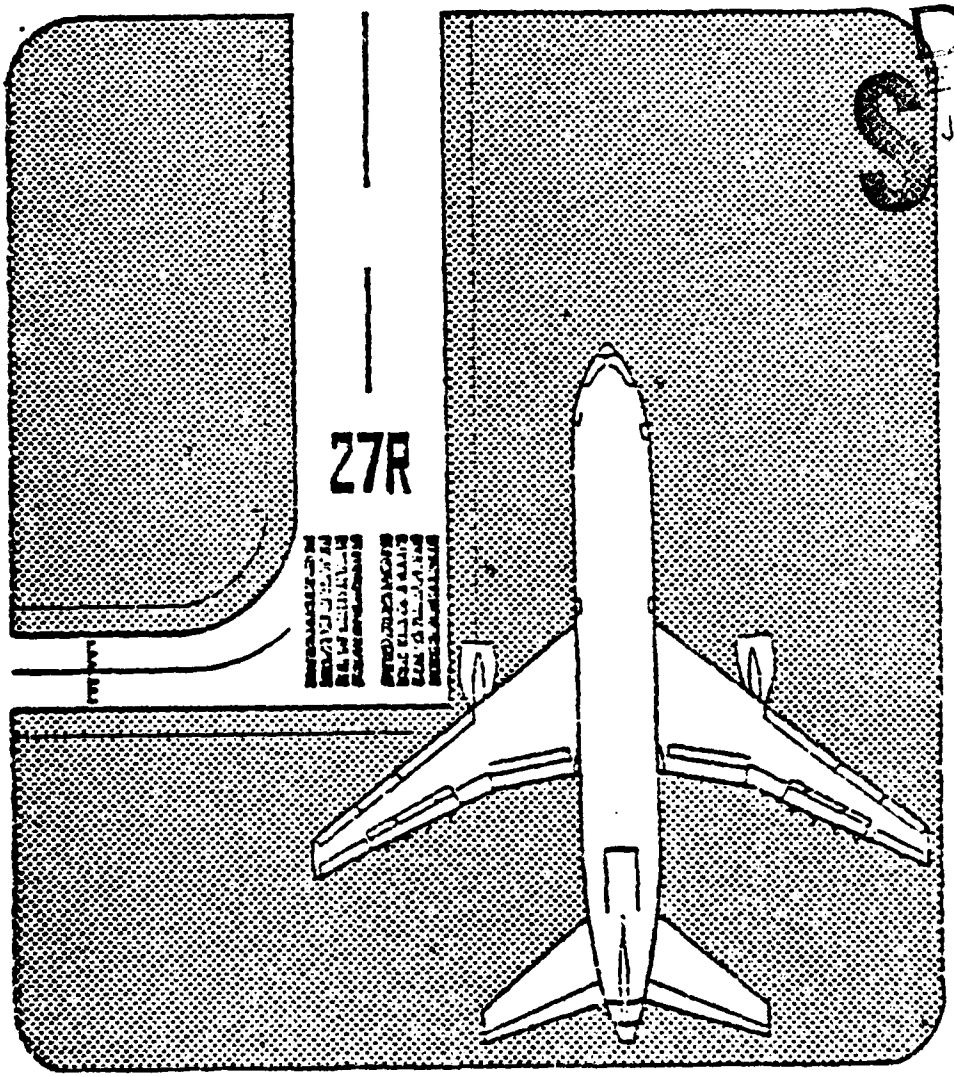
LEVEL III

1

MIAMI INTERNATIONAL AIRPORT

DATA PACKAGE NO. 3

AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



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Miami International Airport.

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DATA PACKAGE NOV 3.

~~Miami~~ Airport Improvement Task Force Delay Studies.

Prepared by:

(12) 120

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DOCUMENT COMPLETE

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LIST OF ILLUSTRATIONS

Attachment A

MIAMI DELAY EXPERIMENTS
STAGE 1
(REVISED)

Miami International Airport

Miami
Airport Improvement Task Force Delay Studies
March 1979

TABLE 2
MIAMI DELAY EXPERIMENTS*
STAGE 1

Experiment Number	Model	Study Case[a]	Arrival Runways	Departure Runways	Weather	Demand	ATC System Scenario[b]	Near-term Improvements[c]
1	ASM[d]	1	9L, 9R, 12	9L, 9R, 12	VFR1	Todays	Todays	None
7	ASM	1	9L, 9R, 12	9L, 9R, 12	VFR1	Pre-1985	Todays	None
11	ASM	1	9L, 9R, 12	9L, 9R, 12	VFR1	Pre-1985	Pre-1985	Pre-1985[e]
14	ASM	1	9L, 9R, 12	9L, 9R, 12	VFR1	Pre-1985	Pre-1985	Pre-1985[e], 50% Less G.A.[g]
4	ASM	4	9L, 9R	9L, 9R, 12	IFR1	Todays	Todays	None
6	ASM	8	None	9L	IFR2	Todays	Todays	None
9	ASM	4	9L, 9R	9L, 9R, 12	IFR1	Pre-1985	Todays	None
10	ASM	8	None	9L	IFR2	Pre-1985	Todays	None
21	ASM	9	9L, 9R	9L, 9R, 12	IFR2	Pre-1985	Pre-1985	Pre-1985[e]
2	ASM	2	27L, 27R, 30	27L, 27R, 30	VFR1	Todays	Todays	None
8	ASM	2	27L, 27R, 30	27L, 27R, 30	VFR1	Pre-1985	Todays	None
3	ASM	3	27L, 27R	27L, 27R, 30	VFR2	Todays	Todays	None
17	ASM	3	27L, 27R	27L, 27R, 30	VFR2	Pre-1985	Todays	None
12	ASM	7	27R, 30	27L, 27R	VFR2	Pre-1985	Pre-1985	Pre-1985[e]
5	ASM	5	27L, 27R	27L, 27R	IFR1	Todays	Todays	None
15	ASM	5	27L, 27R	27L, 27R	IFR1	Pre-1985	Pre-1985	Pre-1985[e]
20	ASM	5	27L, 27R	27L, 27R	IFR1	Pre-1985	Pre-1985	Pre-1985[e], 50% Less G.A.[g]

[a] Study cases are defined in Figure III-1 of the Miami International Airport Technical Plan (Oct. 1978).

[b] FAA will describe impact of pre-1985 and post-1985 ATC systems on model inputs (as per report No. FAA-EM-78-8A).

[c] Potential near-term improvements are identified in Appendix B of the Miami International Airport Technical Plan.

[d] Airfield Simulation Model

[e] Task Force has provided a package of near-term runway/taxiway improvements over and above items 1, 2, and 3 as identified in Appendix B of the Technical Plan. Improvement items 4, 6, 7, 8, and 10 as identified in Appendix B are also modeled in these experiments. Task Force will establish a package of improvements most likely to be implemented in the post-1985 time frame.

[g] Reduction in general aviation achieved by upgrading Opa Locka and Tamiami General Aviation Reliever Airports.

* Stage 1 experiments as revised by the Miami Delay Studies' Task Force on 1/24/79.

Attachment B

REVISIONS TO MIAMI DATA PACKAGE NO. 2

(The following pages are revisions to Data Package No. 2. They should be removed and inserted into Data Package No. 2 by page number.)

Miami International Airport

Miami
Airport Improvement Task Force Delay Studies
March 1979

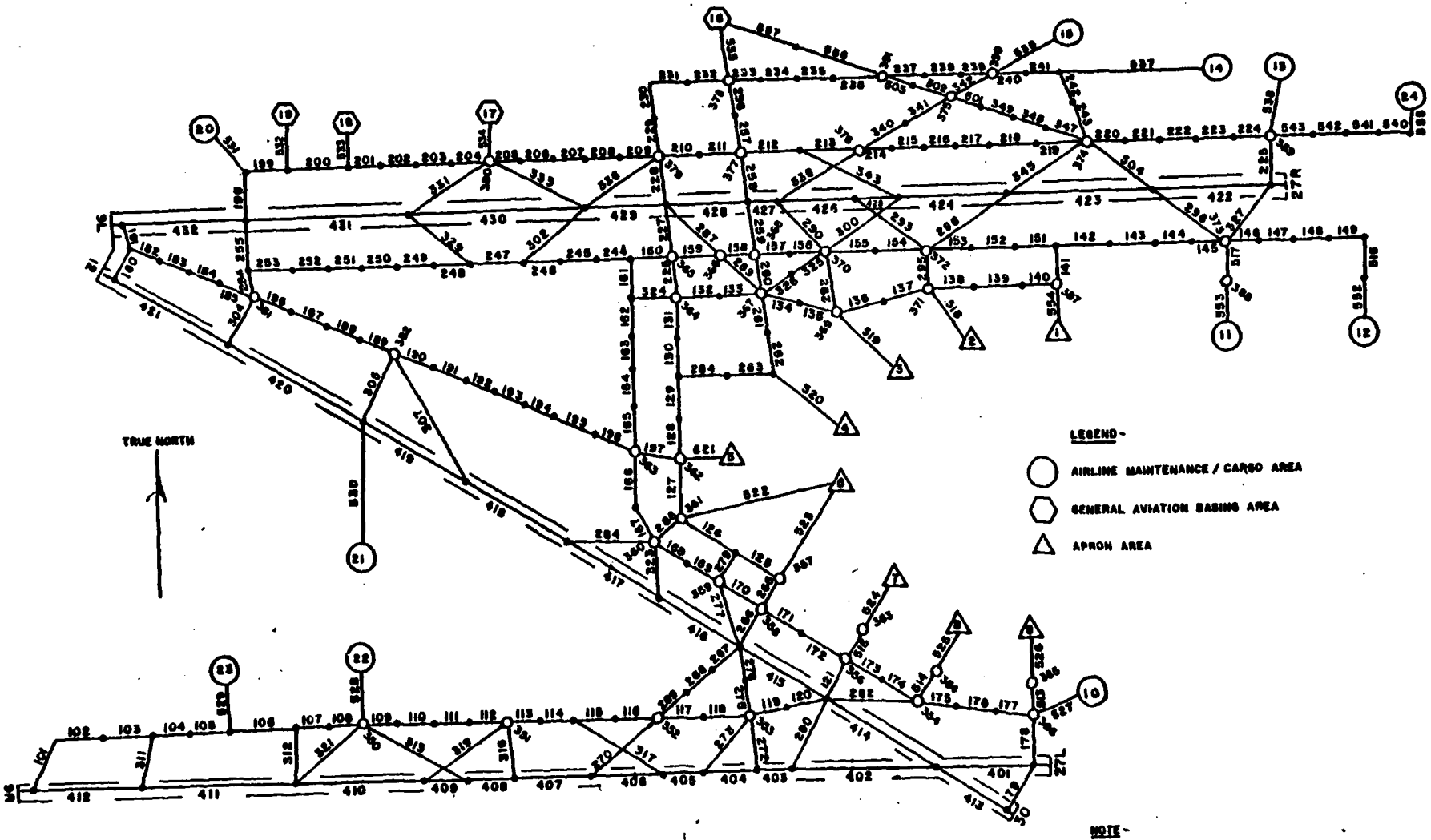
Attachment C

AIRFIELD SIMULATION MODEL
STAGE 1 AND STAGE 2
REVISED LINK-NODE DIAGRAMS

Miami International Airport

Miami
Airport Improvement Task Force Delay Studies

March 1979



MIAMI LINK-NODE DIAGRAM
1978 CONFIGURATION

Figure 1

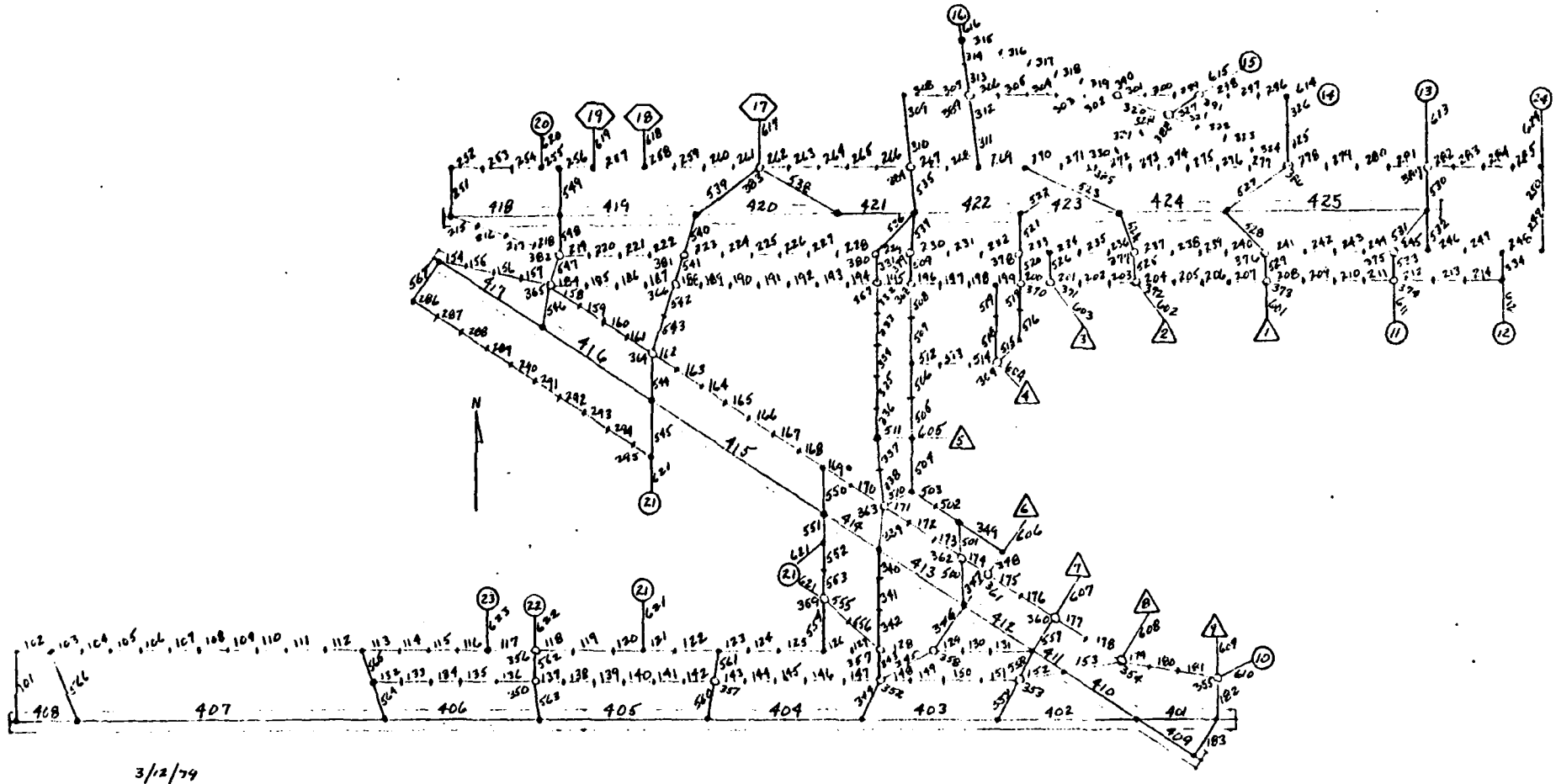


Figure 2
MIAMI LINK-NODE DIAGRAM
1983 CONFIGURATION

MIA - STAGE 1

EXPERIMENT NO. 17

Objective:

To assess the delay impact to aircraft in 1983 for the following configuration under VFR2 conditions, assuming no airport or ATC system improvements have been implemented:

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
27L, 27R	27L, 27R, 30

Related Comparison Experiments:

Prior experiment 3 serves as the 1978 demand level baseline for comparison to this experiment.
Prior experiment 8 examines this configuration with VFR1 weather and 1983 demand.
Stage 2 experiment 19 assesses the delays that accrue after adding near-term airport and ATC system improvements to this study case.

Remaining Data Items:

- 1983 demand.
- 1983 demand input distributions.

MIA - STAGE 1

EXPERIMENT NO. 12

Objective:

To assess delays to aircraft in 1983 for the following runway configuration under VFR2 conditions, assuming the Miami near-term airport improvements and the (pre-1985) ATC system scenario:

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
27R, 30	27L, 27R

Related Comparison Experiments:

Prior experiment 17 serves as a 1983 demand level comparison to this experiment.
Stage 2 experiment 19 examines an alternative runway configuration under the same demand/scenario/improvement conditions of this experiment.

Remaining Data Items:

- Near-term improvements to runways 27L, 27R, and 30 as described on pages B-1 through B-8 of the Miami International Airport Improvement Program Technical Plan (October 1978).
- 1983 demand input distribution: Arrivals on runway 30 permitted under VFR2 due to near-term improvements, assuming waiver or visual separations is granted. Runway 30 closed to departures.
- Route data and exit taxiway utilization for 27R improvements.

Experiment Number: 12 (Input changes from experiment number 17)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
A. Logistics	
1. Title	
2. Random number seeds	
3. Start and finish times	
4. Print options	
5. Airline names	
6. Processing options	
7. Truncation limits	
8. Time switch	
B. Airfield Physical Characteristics	Configuration "B" (Westerly)
9. Airfield network	
10 Number of runways	
11. Runway identification	
12. Departure runway and links	
13. Runway crossing links	
14. Exit taxiway location	
15. Holding areas	
16. Airline gates	
17. General aviation basing areas	
C. ATC Procedures	
18. Aircraft separation	Pre-1985 VFR Separation Values.
19. Route data	
20. Two-way path data	
21. Common approach paths	
22. Vectoring delays	
23. Departing runway queue control	
24. Gate hold control	
25. Departure airspace constraints	
26. Departure queue	
27. Runway crossing delay control	
D. Aircraft Operational Characteristics	
28. Exit taxiway utilization	
29. Arrival runway occupancy times	
30. Touch-and-go runway occupancy times	
31. Departure runway occupancy times	
32. Taxi speeds	
33. Approach speeds	
34. Gate service times	
35. Airspace travel times	
36. Runway crossing times	
37. Lateness distributions	
38. Demand-Demand Input Distribution	(Arrivals permitted on runway 30. Runway 30 closed to departures)

Attachment D

REVISED ROUTE STRUCTURE FOR MIAMI 1978 EXPERIMENTS

Miami International Airport

Miami
Airport Improvement Task Force Delay Studies
March 1979

The revised route structure for the Miami 1978 experiments has been prepared for both the easterly and westerly configurations.

It is available for interested Task Force Members as an independent handout.

Attachment E

AIRFIELD SIMULATION MODEL
STAGE 1 AND STAGE 2
AIRCRAFT SEPARATIONS

Miami International Airport

Miami
Airport Improvement Task Force Delay Studies
March 1979

A/C SEPARATIONS (VFR-1 & 2 VFR SEPARATIONS)
PRE-1985 VFR-1 SEPARATION VALUES (ARRIVAL TO ARRIVAL FOR SAME RUNWAY)

	CLASS 1 NMI. (S.D.)	CLASS 2 NMI. (S.D.)	CLASS 3 NMI. (S.D.)	CLASS 4 NMI. (S.D.)
CLASS 1	3.0 (0.43)	3.3 (0.40)	[illegible]	4.2 [illegible]
CLASS 2	2.2 (0.43)	2.2 (0.40)	2.9 (0.37)	[illegible]
CLASS 3	2.2 (0.43)	2.2 (0.40)	2.7 (0.37)	2.7 [illegible]
CLASS 4	2.2 (0.43)	2.2 (0.40)	2.7 (0.37)	2.7 (0.31)

VFR-2 SEPARATIONS ARE THE SAME AS VFR-1 (ARRIVAL RUNWAY 36 IS CLOSED).

PRE-1985 VFR-2 SEPARATIONS ARE THE SAME AS PRE-1985 VFR-1 (ARRIVAL RUNWAY 36 IS CLOSED)

A/C SEPARATIONS (IFR-1)
IFR-1 SEPARATION VALUES FOR ARRIVAL-TO-ARRIVAL

	CLASS 1 NMI. (S.D.)	CLASS 2 NMI. (S.D.)	CLASS 3 NMI. (S.D.)	CLASS 4 NMI. (S.D.)
CLASS 1	5.2 (0.70)	6.1 (0.65)	7.0 (0.60)	8.8 (0.50)
CLASS 2	4.2 (0.70)	4.1 (0.65)	5.0 (0.60)	4.8 (0.50)
CLASS 3	4.2 (0.70)	4.1 (0.65)	4.0 (0.60)	3.8 (0.50)
CLASS 4	4.2 (0.70)	4.1 (0.65)	4.0 (0.60)	3.8 (0.50)

IFR-1 SEPARATION VALUES FOR DEPARTURE-TO-DEPARTURE

	CLASS 1 NMI. (S.D.)	CLASS 2 NMI. (S.D.)	CLASS 3 NMI. (S.D.)	CLASS 4 NMI. (S.D.)
CLASS 1	1.14(0.08)	2.14(0.08)	2.14(0.08)	2.14(0.08)
CLASS 2	1.14(0.08)	1.14(0.06)	1.13(0.08)	1.13(0.06)
CLASS 3	1.13(0.08)	1.14(0.08)	1.13(0.08)	1.13(0.06)
CLASS 4	1.13(0.08)	1.14(0.08)	1.13(0.08)	1.13(0.06)

IFR-1 SEPARATION VALUES FOR DEPARTURE-TO-ARRIVAL

	CLASS 1 NMI. (S.D.)	CLASS 2 NMI. (S.D.)	CLASS 3 NMI. (S.D.)	CLASS 4 NMI. (S.D.)
CLASS 1	2.0 (0.26)	2.0 (0.25)	2.0 (0.24)	2.0 (0.24)
CLASS 2	2.0 (0.26)	2.0 (0.25)	2.0 (0.24)	2.0 (0.24)
CLASS 3	2.0 (0.25)	2.0 (0.24)	2.0 (0.23)	2.0 (0.23)
CLASS 4	2.0 (0.35)	2.0 (0.24)	2.0 (0.23)	2.0 (0.23)

A/C SEPARATIONS (IFR-1)(PRE-1985 SEPARATION VALUES)
PRE-1985 IFR-1 SEPARATION VALUE FOR ARRIVAL-TO-ARRIVAL

	CLASS 1 NMI. (S.D.)	CLASS 2 NMI. (S.D.)	CLASS 3 NMI. (S.D.)	CLASS 4 NMI. (S.D.)
CLASS 1	4.9 (0.43)	4.8 (0.40)	4.7 (0.37)	4.6 (0.31)
CLASS 2	4.9 (0.43)	4.8 (0.40)	4.7 (0.37)	4.6 (0.31)
CLASS 3	4.9 (0.43)	4.8 (0.40)	4.7 (0.37)	4.6 (0.31)
CLASS 4	4.9 (0.43)	4.8 (0.40)	4.7 (0.37)	4.6 (0.31)

PRE-1985 IFR-1 SEPARATION VALUE FOR ARRIVAL-TO-ARRIVAL DEPENDENT RUNWAYS

	CLASS 1	CLASS 2	CLASS 3	CLASS 4
	NMI. (S.D.)	NMI. (S.D.)	NMI. (S.D.)	NMI. (S.D.)
CLASS 1	2.6 (0.43)	2.7 (0.40)	2.7 (0.37)	2.8 (0.31)
CLASS 2	2.8 (0.43)	2.7 (0.40)	2.7 (0.37)	2.8 (0.31)
CLASS 3	2.8 (0.43)	2.7 (0.40)	2.7 (0.37)	2.8 (0.31)
CLASS 4	2.8 (0.43)	2.7 (0.40)	2.7 (0.37)	2.8 (0.31)

IFR-2 RUNWAY ARRIVAL OCCUPANCY TIMES (CALIBRATION DATA PLUS 5.0 SECONDS)

RWY ARRIVAL OCCUPANCY TIMES (IFR-2 EQUAL TO VFR-1 PLUS 5.0 SECONDS)

1	10								
4972	45.0	5110	54.0	5992	54.0	6140	54.0	6649	53.0
6650	72.0	6702	52.0	6980	64.0	8052	68.0	9200	81.0
2	18								
3630	48.0	4222	52.0	4400	60.0	4799	48.0	4972	45.0
5110	54.0	5732	51.0	5769	49.0	5992	52.0	6140	57.0
6649	68.0	6650	56.0	6702	53.0	6980	65.0	7589	65.0
7590	73.0	8052	64.0	9200	82.0				
3	13								
2470	35.0	2682	38.0	3630	45.0	4400	60.0	4972	51.0
5110	58.0	5732	67.0	5992	61.0	6649	38.0	6702	70.0
6980	65.0	7590	71.0	9200	27.0				
4	4								
2682	68.0	5732	71.0	5992	67.0	6702	52.0		

IFR-2 ARRIVAL-TO-DEPARTURE SEPARATIONS BASED ON ARRIVAL RUNWAY OCCUPANCY

	CLASS 1		CLASS 2		CLASS 3		CLASS 4	
	MINUTES	(S.D.)	MINUTES	(S.D.)	MINUTES	(S.D.)	MINUTES	(S.D.)
CLASS 1	0.96	(0.16)	0.86	(0.19)	1.05	(0.23)	0.82	(0.09)
CLASS 2	0.96	(0.16)	0.86	(0.19)	1.05	(0.23)	0.82	(0.09)
CLASS 3	0.96	(0.16)	0.86	(0.19)	1.05	(0.23)	0.82	(0.09)
CLASS 4	0.96	(0.16)	0.86	(0.19)	1.05	(0.23)	0.82	(0.09)

IFR-2 RUNWAY CROSSING LINK CLEARANCE TIMES (ADD 5 SECONDS TO ARRIVAL ON RUNWAY)

2	227	52	48	47	51	47	47	42	42	30	30	30	30
2	228	52	48	47	51	47	47	42	42	30	30	30	30
2	258	56	54	51	55	47	47	42	42	30	30	30	30
2	259	56	54	51	55	47	47	42	42	30	30	30	30
3	267	52	48	47	51	47	47	42	42	30	30	30	30
3	266	52	48	47	51	47	47	42	42	30	30	30	30
3	121	52	48	47	51	47	47	42	42	30	30	30	30
3	280	52	48	47	51	47	47	42	42	30	30	30	30
-3	282	52	48	47	51	47	47	42	42	30	30	30	30

Attachment F

MIAMI LATENESS DISTRIBUTION

Miami International Airport

Miami
Airport Improvement Task Force Delay Studies
March 1979

MIAMI LATENESS DISTRIBUTION

The enclosed Arrival Lateness Distribution for Miami will be used for all Stage 1 and Stage 2 Airfield Simulation Model runs unless otherwise specified by the Task Force. This distribution will be applied to the proposed arrival times of all scheduled air-carriers in order to estimate an actual arrival time at the airport.

Eastern Airlines, who developed this distribution, feels that their schedule is generally three minutes earlier than the other airlines at Miami. This neccessitates displacing the distribution by three minutes for all other airlines but Eastern. Task Force agreement must be established on this point.

It is important to note that the enclosed distribution analyzes lateness on an hourly basis. This new level of detail should greatly enhance the realism of our traffic samples.

03/05/79

COMPARISON MIAMI ARRIVALS
COMPUTER FLIGHT PLAN PLUS TAXI OUT
VERSUS SCHEDULED ARRIVAL MINUS TAXI IN
AUGUST 1978

		UNDER 15	UNDER 11/15	UNDER 6/10	UNDER 1/5	OVER 0/5	OVER 6/10	OVER 11/15	OVER 15	NO CFP	NO OPNS
COMPLEX OPNS	TOTAL PCT.	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%	987 100.00%	987
0000 - 0100											
COMPLEX OPNS	TOTAL PCT.	.00%	2 1.58%	14 11.11%	39 30.95%	35 27.77%	18 14.28%	12 9.52%	5 3.96%	1 .79%	126
0101 - 0200											
COMPLEX OPNS	TOTAL PCT.	.00%	.00%	.00%	1 100.00%	.00%	.00%	.00%	.00%	.00%	1
0201 - 0300											
COMPLEX OPNS	TOTAL PCT.	.00%	.00%	.00%	9 28.12%	21 65.62%	1 3.12%	.00%	1 3.12%	.00%	32
0901 - 1000											
COMPLEX OPNS	TOTAL PCT.	6 9.67%	21 33.87%	4 6.45%	8 12.90%	22 35.48%	1 1.61%	.00%	.00%	.00%	62
1001 - 1100											
COMPLEX OPNS	TOTAL PCT.	.00%	.00%	1 2.94%	21 61.76%	9 26.47%	.00%	.00%	2 5.88%	1 2.94%	34
1101 - 1200											
COMPLEX OPNS	TOTAL PCT.	.00%	4 1.24%	40 12.42%	104 32.29%	110 34.16%	36 11.18%	10 3.10%	17 5.27%	1 .31%	322
1201 - 1300											
COMPLEX OPNS	TOTAL PCT.	7 2.26%	28 9.06%	55 17.79%	104 33.65%	79 25.56%	21 6.79%	8 2.58%	5 1.61%	2 .64%	309
1301 - 1400											
COMPLEX OPNS	TOTAL PCT.	.00%	2 2.94%	11 16.17%	35 51.47%	12 17.64%	5 7.35%	1 1.47%	1 1.47%	1 1.47%	68
1401 - 1500											
COMPLEX OPNS	TOTAL PCT.	2 1.17%	6 3.52%	22 12.94%	55 32.35%	61 35.88%	13 7.64%	9 5.29%	2 1.17%	.00%	170
1501 - 1600											

Miami Lateness Distribution
Table 1

COMPARISON MIAMI ARRIVALS
COMPUTER FLIGHT PLAN PLUS TAXI OUT
VERSUS SCHEDULED ARRIVAL MINUS TAXI IN
AUGUST 1978

		UNDER 15	UNDER 11/15	UNDER 6/10	UNDER 1/5	OVER 0/5	OVER 6/10	OVER 11/15	OVER 15	NO CFP	NO OPNS
1501 - 1600											
COMPLEX OPNS	TOTAL		2	31	50	58	10	1	2	2	156
	PCT.	.00%	1.28%	19.87%	32.05%	37.17%	6.41%	.64%	1.28%	1.28%	
1601 - 1700											
COMPLEX OPNS	TOTAL	2	8	26	28	37	17	3	4		125
	PCT.	1.60%	6.40%	20.80%	22.40%	29.60%	13.60%	2.40%	3.20%	.00%	
1701 - 1800											
COMPLEX OPNS	TOTAL		1	14	41	61	22	5	5	1	150
	PCT.	.00%	.66%	9.33%	27.33%	40.66%	14.66%	3.33%	3.33%	.66%	
1801 - 1900											
COMPLEX OPNS	TOTAL				7	43	10	2			62
	PCT.	.00%	.00%	.00%	11.29%	69.35%	16.12%	3.22%	.00%	.00%	
1901 - 2000											
COMPLEX OPNS	TOTAL			7	43	28	9	2	5	3	97
	PCT.	.00%	.00%	7.21%	44.32%	28.86%	9.27%	2.06%	5.15%	3.09%	
2001 - 2100											
COMPLEX OPNS	TOTAL	5	10	29	35	21	12	6	6		124
	PCT.	4.03%	8.06%	23.38%	28.22%	16.93%	9.67%	4.83%	4.83%	.00%	
2101 - 2200											
COMPLEX OPNS	TOTAL		9	29	32	11	8	3			92
	PCT.	.00%	9.78%	31.52%	34.78%	11.95%	8.69%	3.26%	.30%	.00%	
2201 - 2300											
COMPLEX OPNS	TOTAL				6	16	10	1			33
	PCT.	.00%	.00%	.00%	18.18%	48.48%	30.30%	3.03%	.00%	.00%	
2301 - 2400											
COMPLEX OPNS	TOTAL		2	7	16	42	17	18	19		121
	PCT.	.00%	1.65%	5.78%	13.22%	34.71%	14.04%	14.87%	15.70%	.00%	

Attachment G

DESCRIPTION OF 1978 DEMAND SCHEDULE PREPARATION

Miami International Airport

Miami
Airport Improvement Task Force Delay Studies
March 1979

DESCRIPTION OF 1978 DEMAND SCHEDULE PREPARATION

This section describes, in general terms, the methodology currently used to develop the 1978 demand schedules for the Airfield Simulation Model experiments at Miami. A methodology for the development of the 1983 demand schedules will not be finalized until after the 1983 Demand Package has been received from the Task Force.

The following steps are now followed in order to generate the 1978 demand schedules for Miami:

.Preparation of OAG schedule(s) for date(s) selected for the simulation experiments.

.Pairing of OAG arrival aircraft with OAG departure aircraft.

.Supplementation of OAG schedule with General Aviation aircraft.

.Supplementation of OAG/GA schedule with airfield towing operations.

.Assignment of OAG/GA/TOWING schedule flights to gate areas, arrival/departure runways, and arrival/departure fixes.

The above steps will now be described, with specific information provided as specifically applicable to MIA.

1) Preparation of OAG Schedule.

Specifically, for Miami, the OAG schedule for March 16, 1978 was extracted from the OAG data tapes available at NAFEC. This schedule includes the airline code, flight number, aircraft type, and proposed arrival/departure time for each scheduled aircraft on the selected day. An airline code to airline group translation was then performed to be consonant with the airline groupings shown in Miami Data Package No. 2, pp. B-18 through B-20.

2) Pairing of OAG Arrivals and Departures.

This function matches OAG arrival aircraft with later departures that are physically the same aircraft. Flight number comparisons yield perfect matches. Remaining flights not matched by flight number are matched by aircraft type and time, if possible. At the completion of this function all flights on the OAG are catagorized into three catagories; Paired arrival/departures, originating departures, and terminating arrivals.

3) Supplementation of General Aviation Aircraft.

In conjunction, the Miami PMS Summary and the Daily Instrument Operations Count for 3/16/78 enabled the G.A. hourly counts for the simulation period to be determined. Those counts were as follows:

TIME	ARRIVAL COUNT	DEPARTURE COUNT
1000-1100	5	5
1100-1200	12	6
1200-1300	6	6
1300-1400	18	5
1400-1500	16	13
1500-1600	14	11
1600-1700	16	16
1700-1800	10	13
1800-1900	13	8

These counts were then applied to uniformly distribute the proper number of aircraft into each hourly period of the paired OAG schedule. These flights were catagorized as terminating arrivals and originating departures. Weight classes were assigned to these supplemental aircraft in proportion to the G.A. weight class distribution developed from the 10/30/78 through 11/3/78 Miami data collection (15% Class A, 65% Class B, 20% Class C). This distribution fixed the number of aircraft in each weight class, but the assignment of these weight classes to the individual aircraft was completely randomized.

4) Supplementation of Towing Operations.

Towing operations for Miami were supplemented in a similar fashion as G.A. operations described above. All of the towed aircraft were catagorized as originating departures, but flagged as towed aircraft with a runway number of "6".

The following numbers of towed aircraft were supplemented into the schedule for the baseline runs:

AIRLINE	TOWS/HOUR	ORIGINATING GATE	TERMINATING GATE
Eastern	6	24	2
Eastern	3	2	24
National	2	12	7
National	2	7	12

Weight classes were assigned proportionately according to the airline group-weight class distributions developed from the 10/30/78 through 11/3/78 Miami data collection (Eastern- 78% Class C, 22% Class D; National- 80% Class C, 20% Class D).

5) Assignment of Aircraft to Gate Areas, Runways and Fixes.

Once the four functions described above have been performed, a schedule is available which contains all flights which are to be included into a simulation run. These flights lack any information with regard to fixes, runways, and gate areas however. This function fills in those missing details by applying various distributions in a specified manner. As before, the distributions are maintained as close as possible, but the actual flight that receives a particular assignment is completely randomized.

Most of the required distributions have previously been presented in Miami Data Package No. 2. Attachment H of this data package shows an example of how these distributions may be adjusted in order to close down a particular runway to arrivals, for example.

With this in mind, only the sequence of steps that this function performs follows:

.Assign arrival flight to a gate area using the Airline Group-Gate Area Distribution.

.Assign arrival flight to a runway by weight class using the Gate Area-Arrival Runway Distributions.

.Assign arrival flight to approach fix by weight class via the Arrival Runway-Approach Fix Distributions.

.Assign departure flight to a gate area using the Airline Group-Gate Area Distribution.
(Only when aircraft is an originating departure - when aircraft has been paired, use the arrival gate)

.Assign departure flight to departure runway by weight class via the Gate Area-Departure Runway Distributions.

.Assign departure flight to departure fix by weight class via the Departure Runway-Departure Fix Distributions.

This attachment closes with a listing of distribution information derived from the Miami data collection for the week of 10/30/78 through 11/3/78. Two important distributions to note are the Airline Group-Gate Area Distributions and the Airline Group-Weight Class Distributions:

CLASS 1	17 %	238 OUT OF 1415
CLASS 2	63 %	897 OUT OF 1415
CLASS 3	16 %	228 OUT OF 1415
CLASS 4	3 %	40 OUT OF 1415
CLASS 5	1 %	12 OUT OF 1415

PERCENT SUMS TO 100

IA	GROUP 1	16 %	203 OUT OF 1169 NON-GA
EA	GROUP 2	27 %	312 OUT OF 1169 NON-GA
BB	GROUP 3	3 %	30 OUT OF 1169 NON-GA
FF	GROUP 4	11 %	128 OUT OF 1169 NON-GA
GG	GROUP 5	10 %	117 OUT OF 1169 NON-GA
HH	GROUP 6	14 %	158 OUT OF 1169 NON-GA
C1	GROUP 7	10 %	113 OUT OF 1169 NON-GA
C2	GROUP 8	5 %	62 OUT OF 1169 NON-GA
F1	GROUP 9	2 %	29 OUT OF 1169 NON-GA
F2	GROUP 10	1 %	7 OUT OF 1169 NON-GA
F3	GROUP 11	1 %	10 OUT OF 1169 NON-GA

PERCENT SUMS TO 100

AA GROUP 1	15 %	205 OUT OF 1415 WITH-GA
EA GROUP 2	23 %	312 OUT OF 1415 WITH-GA
BB GROUP 3	2 %	30 OUT OF 1415 WITH-GA
FF GROUP 4	9 %	128 OUT OF 1415 WITH-GA
GG GROUP 5	8 %	117 OUT OF 1415 WITH-GA
HH GROUP 6	11 %	158 OUT OF 1415 WITH-GA
C1 GROUP 7	8 %	113 OUT OF 1415 WITH-GA
C2 GROUP 8	4 %	62 OUT OF 1415 WITH-GA
F1 GROUP 9	2 %	29 OUT OF 1415 WITH-GA
F2 GROUP 10	0 %	7 OUT OF 1415 WITH-GA
F3 GROUP 11	1 %	10 OUT OF 1415 WITH-GA
BA GROUP 12	17 %	246 OUT OF 1415 WITH-GA

PERCENT SUMS TO 100

IA GROUP 1 CLASS 1 39 % 79 OUT OF 203

IA GROUP 1 CLASS 2 55 % 111 OUT OF 203

IA GROUP 1 CLASS 3 0 % 1 OUT OF 203

IA GROUP 1 CLASS 4 0 % 0 OUT OF 203

IA GROUP 1 CLASS 5 6 % 12 OUT OF 203

PERCENT SUMS TO 100

EA GROUP 2 CLASS 1 22 % 68 OUT OF 312

EA GROUP 2 CLASS 2 78 % 244 OUT OF 312

EA GROUP 2 CLASS 3 0 % 0 OUT OF 312

EA GROUP 2 CLASS 4 0 % 0 OUT OF 312

EA GROUP 2 CLASS 5 0 % 0 OUT OF 312

PERCENT SUMS TO 100

DD	GROUP 3	CLASS 1	13 %	4	OUT OF	30
DD	GROUP 3	CLASS 2	87 %	26	OUT OF	30
DD	GROUP 3	CLASS 3	0 %	0	OUT OF	30
DD	GROUP 3	CLASS 4	0 %	0	OUT OF	30
DD	GROUP 3	CLASS 5	0 %	0	OUT OF	30

PERCENT SUMS TO 100

FF GROUP 4 CLASS 1 20 % 25 OUT OF 128

FF GROUP 4 CLASS 2 80 % 103 OUT OF 128

FF GROUP 4 CLASS 3 0 % 0 OUT OF 128

FF GROUP 4 CLASS 4 0 % 0 OUT OF 128

FF GROUP 4 CLASS 5 0 % 0 OUT OF 128

PERCENT SUMS TO 100

```
GG  GROUP  5     CLASS  1        19 %              22 OUT OF   117

GG  GROUP  5     CLASS  2        81 %              95 OUT OF   117

GG  GROUP  5     CLASS  3         0 %               0 OUT OF   117

GG  GROUP  5     CLASS  4         0 %               0 OUT OF   117

GG  GROUP  5     CLASS  5         0 %               0 OUT OF   117

PERCENT SUMS TO 100
```

HH GROUP 6 CLASS 1 17 % 27 OUT OF 158

HH GROUP 6 CLASS 2 83 % 131 OUT OF 158

HH GROUP 6 CLASS 3 0 % 0 OUT OF 158

HH GROUP 6 CLASS 4 0 % 0 OUT OF 158

HH GROUP 6 CLASS 5 0 % 0 OUT OF 158

PERCENT SUMS TO 100

C1 GROUP 7 CLASS 1 0 % 0 OUT OF 113

C1 GROUP 7 CLASS 2 76 % 86 OUT OF 113

C1 GROUP 7 CLASS 3 24 % 27 OUT OF 113

C1 GROUP 7 CLASS 4 0 % 0 OUT OF 113

C1 GROUP 7 CLASS 5 0 % 0 OUT OF 113

PERCENT SUMS TO 100

C2 GROUP 8 CLASS 1 0 % 0 OUT OF 62

C2 GROUP 8 CLASS 2 49 % 30 OUT OF 62

C2 GROUP 8 CLASS 3 48 % 30 OUT OF 62

C2 GROUP 8 CLASS 4 3 % 2 OUT OF 62

C2 GROUP 8 CLASS 5 0 % 0 OUT OF 62

PERCENT SUMS TO 100

F1 GROUP 9 CLASS 1 21 % 6 OUT OF 29

F1 GROUP 9 CLASS 2 55 % 16 OUT OF 29

F1 GROUP 9 CLASS 3 24 % 7 OUT OF 29

F1 GROUP 9 CLASS 4 0 % 0 OUT OF 29

F1 GROUP 9 CLASS 5 0 % 0 OUT OF 29

PERCENT SUMS TO 100

F2 GROUP 10 CLASS 1 0 % 0 OUT OF 7

F2 GROUP 10 CLASS 2 57 % 4 OUT OF 7

F2 GROUP 10 CLASS 3 43 % 3 OUT OF 7

F2 GROUP 10 CLASS 4 0 % 0 OUT OF 7

F2 GROUP 10 CLASS 5 0 % 0 OUT OF 7

PERCENT SUMS TO 100

F3 GROUP 11 CLASS 1 70 % 7 OUT OF 10

F3 GROUP 11 CLASS 2 30 % 3 OUT OF 10

F3 GROUP 11 CLASS 3 0 % 0 OUT OF 10

F3 GROUP 11 CLASS 4 0 % 0 OUT OF 10

F3 GROUP 11 CLASS 5 0 % 0 OUT OF 10

PERCENT SUMS TO 100

GA GROUP 12 CLASS 1 0 % 0 OUT OF 246

GA GROUP 12 CLASS 2 20 % 48 OUT OF 246

GA GROUP 12 CLASS 3 65 % 160 OUT OF 246

GA GROUP 12 CLASS 4 15 % 38 OUT OF 246

GA GROUP 12 CLASS 5 0 % 0 OUT OF 246

PERCENT SUMS TO 100

IA GROUP 1	GATE 4	17 %	32 OUT OF 203
IA GROUP 1	GATE 5	32 %	62 OUT OF 203
IA GROUP 1	GATE 6	34 %	69 OUT OF 203
IA GROUP 1	GATE 16	0 %	1 OUT OF 203
IA GROUP 1	GATE 17	2 %	5 OUT OF 203
IA GROUP 1	GATE 18	2 %	4 OUT OF 203
IA GROUP 1	GATE 19	3 %	6 OUT OF 203
IA GROUP 1	GATE 20	2 %	5 OUT OF 203
IA GROUP 1	GATE 21	3 %	7 OUT OF 203
IA GROUP 1	GATE 22	1 %	3 OUT OF 203
IA GROUP 1	GATE 23	4 %	9 OUT OF 203

PERCENT SUMS TO 100

EA GROUP 2 GATE 1 6 % 19 OUT OF 312

EA GROUP 2 GATE 2 52 % 161 OUT OF 312

EA GROUP 2 GATE 3 42 % 132 OUT OF 312

PERCENT SUMS TO 100

DD GROUP 3 GATE 3 17 % 5 OUT OF 30

DD GROUP 3 GATE 4 83 % 25 OUT OF 30

PERCENT SUMS TO 100

FF GROUP 4 GATE 6 47 % 60 OUT OF 128

FF GROUP 4 GATE 7 52 % 67 OUT OF 128

FF GROUP 4 GATE 21 1 % 1 OUT OF 128

PERCENT SUMS TO 100

66 GROUP 5 GATE 5 3 % 5 OUT OF 117

66 GROUP 5 GATE 6 3 % 4 OUT OF 117

66 GROUP 5 GATE 7 33 % 39 OUT OF 117

66 GROUP 5 GATE 8 61 % 71 OUT OF 117

PERCENT SUMS TO 100

HH GROUP 6 GATE 7 10 % 16 OUT OF 158

HH GROUP 6 GATE 8 25 % 39 OUT OF 158

HH GROUP 6 GATE 9 65 % 103 OUT OF 158

HH GROUP 6 GATE 10 0 % 0 OUT OF 158

PERCENT SUMS TO 100

C1 GROUP 7 GATE 3 45 % 51 OUT OF 113

C1 GROUP 7 GATE 4 19 % 22 OUT OF 113

C1 GROUP 7 GATE 9 33 % 37 OUT OF 113

C1 GROUP 7 GATE 17 3 % 3 OUT OF 113

PERCENT SUMS TO 100

C2 GROUP 8 GATE 6 22 % 14 OUT OF 62

C2 GROUP 8 GATE 8 2 % 1 OUT OF 62

C2 GROUP 8 GATE 9 73 % 45 OUT OF 62

C2 GROUP 8 GATE 17 3 % 2 OUT OF 62

PERCENT SUMS TO 100

F1 GROUP 9 GATE 17 48 % 14 OUT OF 29

F1 GROUP 9 GATE 18 31 % 9 OUT OF 29

F1 GROUP 9 GATE 19 14 % 4 OUT OF 29

F1 GROUP 9 GATE 20 7 % 2 OUT OF 29

PERCENT SUMS TO 100

F2	GROUP 10	GATE 14	14 %	1 OUT OF 7
F2	GROUP 10	GATE 15	14 %	1 OUT OF 7
F2	GROUP 10	GATE 16	29 %	2 OUT OF 7
F2	GROUP 10	GATE 18	43 %	3 OUT OF 7

PERCENT SUMS TO 100

F3 GROUP 11 GATE 21 10 % 1 OUT OF 10

F3 GROUP 11 GATE 22 20 % 2 OUT OF 10

F3 GROUP 11 GATE 23 70 % 7 OUT OF 10

PERCENT SUMS TO 100

GA GROUP 12	GATE 9	9 %	22 OUT OF 246
GA GROUP 12	GATE 16	1 %	2 OUT OF 246
GA GROUP 12	GATE 17	61 %	151 OUT OF 246
GA GROUP 12	GATE 18	26 %	64 OUT OF 246
GA GROUP 12	GATE 19	2 %	5 OUT OF 246
GA GROUP 12	GATE 20	1 %	2 OUT OF 246

PERCENT SUMS TO 100

Attachment H

REPRESENTATIVE 1978 DEMAND SCHEDULES

Miami International Airport

Miami
Airport Improvement Task Force Delay Studies
March 1979

REPRESENTATIVE 1978 DEMAND SCHEDULES

This attachment includes listings of two 1978 demand schedules that will be used for Miami Stage 1 runs. Also included are several of the demand input distributions that were applied during preparation of these schedules.

The Arrival Runway-Gate Distributions shown have been reformatted from those shown in Data Package No. 2. Here, the distributions have been reworked so that the runway utilization sums to 100 percent for each gate area. Also, the letter A in parentheses (A) indicates that the particular assignment was required during demand schedule preparation, but did not specifically occur in the field-collected data of 10/30/78 through 11/3/78. Best judgment of the situation involved was applied to all of these cases.

The Arrival Fix- Runway Distributions shown are in the same format as in Data Package No. 2. Here the arrival fix utilization for each runway sums to 100 percent.

The first demand schedule included applies to Experiment No. 1. This is a baseline case under VFR1 conditions and the easterly configuration, with all runways open to arrivals.

The second demand schedule included applies to Experiment No. 4. Here, conditions have moved to IFR1 and runway 12 has been closed to arrivals. This necessitated redistributing the runway 12 arrivals of Experiment No. 1's demand schedule to runways 9R and 9L according to the fix rule. This also necessitated reducing the number of G. A. operations as used for Experiment No. 1, since Experiment No. 4 models IFR1 conditions.

In order to close runway 12 to arrivals, the Gate-Arrival Runway Distributions and the Arrival Fix-Runway Distributions as used for Experiment No. 1 served as a basis for computation of the distributions for Experiment No. 4. Arrival fix counts for runway 12 were shifted to 9L and 9R according to the fix rule, and the Arrival Fix-Runway Distributions were recomputed. It was also observed that 80 percent of the aircraft shifted to 9L or 9R by the fix rules went to 9L, and the other 20 percent went to 9R. The Arrival Runway-Gate Distributions used for Experiment No. 1 were then reworked according to these percentages to derive the distributions for Experiment No. 4.

Lastly, the general aviation counts of Experiment No. 1 were reduced to account for the change from VFR1 to IFR1 conditions in Experiment No. 4. This reduction was performed by randomly eliminating the required number of G. A. aircraft in Experiment No. 1's schedule according to the following rule:

RULE: General Aviation Reduction - VFR to IFR

1) Eliminate all single-engine G. A. (Class A)

2) Eliminate 50 percent of small twin-engine G. A. (Class B)

This rule, which was specified by the Task Force, has been applied to the enclosed schedule for Experiment No. 4.

There are several other distributions required for schedule generation than those discussed here (see Attachment G). The primary purpose of this attachment is to provide an example of how desired airport operations can be attained for model input via application and/or modification of known distributions derived from Miami field-data collection effort.

EXPERIMENT 1

% of Class 1: Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
1		100 (3)				
2	18 (3)	82 (14)				
3	29 (2)	71 (5)				
4	22 (2)	78 (7)				
5	86 (12)	14 (2)				
6	90 (17)	10 (2)				
7	100 (8)					
8	100 (6)					
9	100 (5)					
10-16						
17		100 (A)				
18		100 (1)				
19		100 (1)				
20		100 (1)				

Easterly Configuration

EXPERIMENT 1

% of Class 1: Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
21	100 (5)					
22	100 (1)					
23	100 (5)					

EXPERIMENT 1

% of Class 2: Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
1		100 (1)				
2	11 (6)	89 (49)				
3	2 (1)	96 (55)	2 (1)			
4	6 (1)	94 (16)				
5	71 (5)	29 (2)				
6	85 (53)	13 (8)	2 (1)			
7	78 (38)	22 (11)				
8	86 (38)	9 (4)	5 (2)			
9	89 (48)	2 (1)	9 (5)			
10-15						
16	50 (1)	50 (1)				
17	25 (4)	75 (12)				
18	6 (1)	94 (16)				
19	22 (2)	78 (7)				

Easterly Configuration

EXPERIMENT 1

% of Class 2: Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
20		100 (A)				
21	100 (1)					
22	100 (3)					
23	100 (2)					

EXPERIMENT 1

% of Class 3: Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
1						
2		100 (1)				
3		92 (12)	8 (1)			
4		100 (1)				
5		100 (1)				
6	89 (8)	11 (1)				
7	100 (1)					
8	100 (1)					
9	73 (8)	27 (3)				
10-15						
16		100 (A)				
17	7 (3)	93 (40)				
18	11 (2)	89 (16)				
19		100 (2)				

Easterly Configuration

EXPERIMENT 1

% of Class 3: Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
20		100 (A)				
21-23						

EXPERIMENT 1

% of Class 4: Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
1-2						
3		100 (1)				
4-8						
9		100 (1)				
10-16						
17		100 (6)				
18		100 (4)				
19		100 (A)				
20		100 (A)				
21-23						

Easterly Configuration

EXPERIMENT 1

% of Class 5 (B747): Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
1-3						
4	22	78				
5	86	14				
6	90	10				
7						
8	100					
9-20						
21	100					
22						
23	100					

Easterly Configuration

EXPERIMENT 1 - CLASS 1
ARRIVAL FIX/RUNWAY DISTRIBUTIONS

RUNWAY (Rwy)	LONNI (L)	OWNER (O)	FAMIN (F)	WESTO (W)	FORT LAUDERDALE (FLL)	BISCAYNE BAY (BYS)	MIAMI (MIA)	NORTHEAST QUADRANT (NE)
9R	19 (12)	42 (27)	6 (4)	33 (21)				
9L	18 (6)	35 (12)	21 (7)	26 (9)				
12				100 (2)				
27R								
27L								
30								

Easterly Configuration

EXPERIMENT 1 - CLASS 2
ARRIVAL FIX/RUNWAY DISTRIBUTIONS

RUNWAY (Rwy)	LONNI (L)	OWNER (O)	FAMIN (F)	WESTO (W)	FORT LAUDERDALE (FLL)	BISCAYNE BAY (BYS)	MIAMI (MIA)	NORTHEAST QUADRANT (NE)
9R	29 (57)	23 (45)	20 (38)	25 (49)	1 (1)	1 (2)	1 (2)	
9L	44 (79)	12 (21)	4 (7)	38 (3)	1 (1)	1		
12	40 (4)		20 (2)	30 (3)	10 (1)			
27R								
27L								
30								

Easterly Configuration

EXPERIMENT 1 - CLASS 3
ARRIVAL FIX/RUNWAY DISTRIBUTIONS

RUNWAY (Rwy)	LONNI (L)	OWNER (O)	FAMIN (F)	WESTO (W)	FORT LAUDERDALE (FLL)	BISCAYNE BAY (BYS)	MIAMI (MIA)	NORTHEAST QUADRANT (NE)
9R		12 (1)	63 (5)	13 (1)		12 (1)		
9L	25 (15)	15 (9)		44 (26)	2 (1)		5 (3)	9 (5)
12								
27R								
27L								
30								

Easterly Configuration

EXPERIMENT 1 - CLASS 4
ARRIVAL FIX/RUNWAY DISTRIBUTIONS

RUNWAY (Rwy)	LONNI (L)	OWNER (O)	FAMIN (F)	WESTO (W)	FORT LAUDERDALE (FLL)	BISCAYNE BAY (BYS)	MIAMI (MIA)	NORTHEAST QUADRANT (NE)
9R						100 (1)		
9L	11 (1)			67 (6)			11 (1)	11 (1)
12								
27R								
27L								
30								

Easterly Configuration

EXPERIMENT 1 - CLASS 5 (B747)
ARRIVAL FIX/RUNWAY DISTRIBUTIONS

RUNWAY (Rwy)	LONNI (L)	OWNER (O)	FAMIN (F)	WESTO (W)	FORT LAUDERDALE (FLL)	BISCAYNE BAY (BYS)	MIAMI (MIA)	NORTHEAST QUADRANT (NE)
9R	19	42	6	33				
9L	18	35	21	26				
12				100				
27R								
27L								
30								

Easterly Configuration

FILENAME - 012-101-200/MIA-DATA/TSAMPLE

AIRCRAFT SCHEDULE FOR EXPERIMENT NO. 1

(Lateness Distribution not applied)

IA	99	4	3	2	10	30	11	30	3	3	1	9
IA	99	5	3	2	10	30	13	0	3	4	1	9
GA	99	19	2	3	10	38	0	0	1	1	0	0
IA	99	5	2	2	10	40	0	0	3	4	0	0
EA	99	2	3	1	10	45	11	36	1	1	1	9
EA	99	2	3	2	10	45	11	40	1	1	1	9
EA	99	3	3	2	10	48	12	5	1	4	1	9
C1	99	17	3	2	10	50	13	45	3	3	1	9
EA	99	2	3	1	10	55	12	7	3	3	1	9
GA	99	17	2	3	10	56	0	0	1	1	0	0
IA	99	5	3	2	11	0	21	0	3	4	1	9
C1	99	3	3	2	11	0	12	40	1	1	1	9
IA	99	6	3	1	11	0	14	0	2	2	2	9
GA	99	17	2	3	11	6	0	0	1	1	0	0
FF	99	7	3	2	11	8	12	10	3	2	2	9
GA	99	18	2	3	11	8	0	0	1	1	0	0
EA	99	2	3	2	11	10	11	40	1	1	1	9
EA	99	2	3	2	11	13	12	12	3	2	1	9
EA	99	3	3	2	11	15	11	49	1	1	1	9
FF	99	7	3	2	11	15	12	15	3	3	2	9
IA	99	6	3	2	11	15	14	0	3	4	2	9
C2	99	9	3	2	11	15	11	30	3	4	2	9
GA	99	18	2	3	11	17	0	0	1	1	0	0
GA	99	18	2	3	11	18	0	0	1	1	0	0
IA	99	5	3	2	11	20	12	20	3	2	1	9
GG	99	8	3	1	11	20	12	30	1	1	2	9
EA	99	2	2	2	11	21	0	0	3	3	0	0
GA	99	17	2	3	11	24	0	0	1	1	0	0
GG	99	7	3	2	11	25	12	55	1	4	2	9
EA	99	3	3	1	11	26	12	45	3	2	1	9
IA	99	5	3	2	11	30	15	30	3	4	2	9
EA	99	3	3	2	11	32	13	0	3	3	1	9
HH	99	9	3	2	11	35	12	25	3	4	2	9
FF	99	6	3	2	11	36	12	30	1	1	2	9
GA	99	17	2	3	11	36	0	0	1	1	0	0
EA	99	3	3	1	11	36	12	25	1	3	1	9
EA	99	3	3	1	11	36	13	25	3	2	1	9
GA	99	12	2	2	11	39	0	0	1	1	0	0
IA	99	6	3	2	11	40	14	50	1	1	2	9
GA	99	17	2	2	11	42	0	0	1	2	0	0
EA	99	2	3	2	11	45	12	45	1	2	1	9
HH	99	8	3	1	11	45	13	0	1	1	2	9
GA	99	17	2	3	11	48	0	0	1	1	0	0
HH	99	9	3	2	11	50	12	45	3	4	2	9
C2	99	9	3	2	11	50	12	0	1	4	2	9
HH	99	9	3	2	11	51	12	41	3	3	2	9
GG	99	8	3	1	11	52	13	15	1	1	2	9
C2	99	9	3	2	11	55	16	30	1	1	2	9
EA	99	3	3	2	11	55	12	25	1	1	1	9
IA	99	6	3	2	11	55	15	30	3	4	2	9
GG	99	7	3	1	11	57	13	0	3	2	2	9
HH	99	9	3	1	11	59	13	15	3	4	2	9
GA	99	17	2	3	11	59	0	0	1	1	0	0
DD	99	4	3	2	12	0	12	50	1	1	1	9
IA	99	5	3	1	12	0	14	0	3	3	2	9
GA	99	17	2	3	12	2	0	0	1	1	0	0
GG	99	7	3	2	12	2	13	30	2	1	2	9
GG	99	7	3	2	12	3	14	55	1	1	2	9
GA	99	17	2	3	12	5	0	0	3	2	0	0

FF	99	6	3	1	12	9	13	35	1	1	2	9	
EA	99	2	3	2	12	10	13	10	1	1	1	9	
HH	99	8	3	2	12	10	13	0	1	1	2	9	
FF	99	7	3	2	12	12	12	50	2	1	2	9	
EA	99	2	3	1	12	14	13	30	3	3	1	9	
IA	99	6	3	2	12	15	14	0	1	1	2	9	
HH	99	9	3	2	12	15	13	15	2	1	2	9	
IA	99	6	3	2	12	15	13	15	2	1	2	9	
HH	99	8	3	1	12	18	12	54	1	4	2	9	
HH	99	9	3	2	12	20	13	10	2	2	2	9	
GA	99	17	2	2	12	23	0	0	3	3	0	0	
HH	99	8	3	2	12	25	13	15	1	1	2	9	
C1	99	3	3	2	12	25	15	45	3	2	1	9	
EA	99	3	3	2	12	25	13	20	3	4	1	9	
EA	99	2	3	2	12	26	13	25	1	4	1	9	
HH	99	7	3	2	12	30	13	35	1	1	2	9	
IA	99	6	3	2	12	30	15	30	3	4	2	9	
IA	99	6	3	2	12	30	14	0	3	2	2	9	
EA	99	2	3	2	12	32	13	44	1	1	1	9	
EA	99	3	3	2	12	35	14	42	1	1	1	9	
HH	99	9	3	1	12	37	13	40	2	4	2	9	
GG	99	7	3	1	12	38	13	40	3	2	2	9	
GG	99	8	3	1	12	40	16	0	1	1	2	9	
GG	99	7	3	2	12	40	13	40	3	4	2	9	
GG	99	7	3	2	12	40	13	35	3	4	2	9	
EA	99	2	3	2	12	40	13	20	1	1	1	9	
FF	99	6	3	1	12	40	13	40	3	2	2	9	
GA	99	18	2	3	12	42	0	0	1	1	0	0	
HH	99	9	3	2	12	42	16	45	1	1	2	9	
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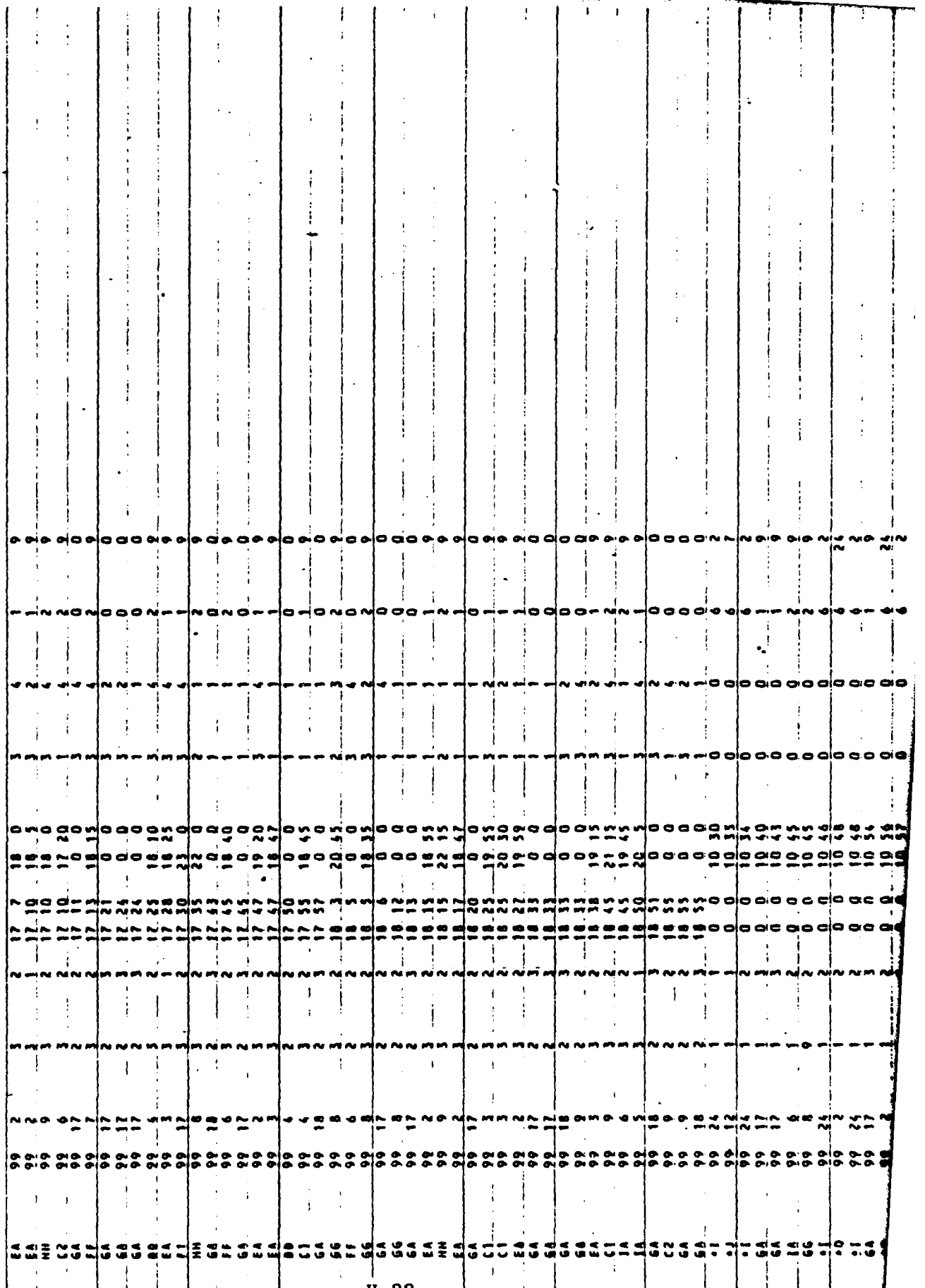

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*I	99	24	1	2	0	0	16	10	0	0	0	6	2
*O	99	2	1	2	0	0	16	10	0	0	0	6	24
GA	99	17	1	3	0	0	16	11	0	0	0	1	9
GA	99	17	1	2	0	0	16	11	0	0	0	1	9
*I	99	24	1	2	0	0	16	12	0	0	0	6	2
*P	99	7	1	1	0	0	16	14	0	0	0	6	12
GA	99	9	1	3	0	0	16	18	0	0	0	2	9
GA	99	17	1	4	0	0	16	19	0	0	0	1	9
*J	99	12	1	2	0	0	16	23	0	0	0	6	7
GA	99	17	1	4	0	0	16	24	0	0	0	1	9
GA	99	18	1	3	0	0	16	25	0	0	0	1	9
GG	99	7	1	2	0	0	16	25	0	0	0	2	9
*J	99	12	1	2	0	0	16	26	0	0	0	6	7
GA	99	17	1	2	0	0	16	28	0	0	0	1	9
*O	99	2	1	1	0	0	16	31	0	0	0	6	24
*I	99	24	1	2	0	0	16	32	0	0	0	6	2
*I	99	24	1	2	0	0	16	37	0	0	0	6	2
*O	99	2	1	2	0	0	16	37	0	0	0	6	24
GA	99	17	1	3	0	0	16	38	0	0	0	1	9
GA	99	17	1	3	0	0	16	41	0	0	0	1	9
*I	99	24	1	1	0	0	16	42	0	0	0	6	2
FF	99	7	1	2	0	0	16	45	0	0	0	2	9
GA	99	17	1	2	0	0	16	48	0	0	0	1	9
GA	99	18	1	3	0	0	16	49	0	0	0	1	9
*P	99	7	1	2	0	0	16	50	0	0	0	6	12
GA	99	17	1	4	0	0	16	50	0	0	0	1	9
GA	99	18	1	3	0	0	16	51	0	0	0	1	9
GA	99	18	1	3	0	0	16	58	0	0	0	1	9
*I	99	24	1	1	0	0	17	6	0	0	0	6	2
*I	99	24	1	2	0	0	17	13	0	0	0	6	2
*O	99	2	1	2	0	0	17	13	0	0	0	6	24
GA	99	18	1	3	0	0	17	17	0	0	0	2	9
*P	99	7	1	2	0	0	17	19	0	0	0	6	12
*O	99	2	1	2	0	0	17	19	0	0	0	6	24
*P	99	7	1	2	0	0	17	20	0	0	0	6	12
EA	99	2	1	1	0	0	17	20	0	0	0	1	9
*O	99	2	1	2	0	0	17	21	0	0	0	6	24

IA	99	6	1	1	0	0	17	25	0	0	2	9
*I	99	24	1	2	0	0	17	35	0	0	6	2
GA	99	17	1	4	0	0	17	38	0	0	1	9
GA	99	17	1	3	0	0	17	38	0	0	1	9
GA	99	18	1	2	0	0	17	39	0	0	1	9
GA	99	17	1	4	0	0	17	44	0	0	1	9
*I	99	24	1	2	0	0	17	46	0	0	6	2
*I	99	24	1	2	0	0	17	49	0	0	6	2
*J	99	12	1	1	0	0	17	51	0	0	6	7
*J	99	12	1	2	0	0	17	53	0	0	6	7
*I	99	24	1	1	0	0	17	54	0	0	6	2
GA	99	17	1	3	0	0	17	57	0	0	1	9
*I	99	24	1	2	0	0	18	0	0	0	6	2
EA	99	3	1	1	0	0	18	0	0	0	1	9
IA	99	6	1	2	0	0	18	0	0	0	2	9
*I	99	24	1	2	0	0	18	2	0	0	6	2
GA	99	17	1	3	0	0	18	2	0	0	1	9
*P	99	7	1	1	0	0	18	5	0	0	6	12
*J	99	12	1	2	0	0	18	6	0	0	6	7
*Q	99	2	1	2	0	0	18	6	0	0	6	24
*I	99	24	1	1	0	0	18	13	0	0	6	2
*J	99	12	1	2	0	0	18	16	0	0	6	7
GA	99	17	1	3	0	0	18	17	0	0	1	9
GA	99	17	1	3	0	0	18	31	0	0	1	9
GA	99	18	1	3	0	0	18	32	0	0	1	9
*P	99	7	1	2	0	0	18	33	0	0	6	12
*I	99	24	1	2	0	0	18	33	0	0	6	2
GA	99	17	1	2	0	0	18	34	0	0	1	9
*I	99	24	1	2	0	0	18	38	0	0	6	2
*Q	99	2	1	2	0	0	18	38	0	0	6	24
*Q	99	2	1	2	0	0	18	44	0	0	6	24
GA	99	17	1	3	0	0	18	46	0	0	1	9
GA	99	9	1	3	0	0	18	51	0	0	2	9
*I	99	24	1	2	0	0	18	53	0	0	6	2

EXPERIMENT 4

% of Class 1: Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
1		100 (3)				
2	18 (3)	82 (14)				
3	29 (2)	71 (5)				
4	22 (2)	78 (7)				
5	86 (12)	14 (2)				
6	90 (17)	10 (2)				
7	100 (8)					
8	100 (6)					
9	100 (5)					
10-16						
17		100 (A)				
18		100 (1)				
19		100 (1)				
20		100 (1)				

Runway 12 closed for arrivals: Aircraft distributed according to Fix Rule

EXPERIMENT 4

% of Class 1: Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
21	100 (5)					
22	100 (1)					
23	100 (5)					

EXPERIMENT 4

% of Class 2: Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
1		100 (1)				
2	11 (6)	89 (49)				
3	2 (1)	98 (56)				
4	6 (1)	94 (16)				
5	71 (5)	29 (2)				
6	85 (53)	15 (9)				
7	78 (38)	22 (11)				
8	86 (38)	14 (6)				
9	93 (50)	7 (4)				
10-15						
16	50 (1)	50 (1)				
17	25 (4)	75 (12)				
18	6 (1)	94 (16)				
19	22 (2)	78 (7)				

Runway 12 closed for arrivals: Aircraft distributed according to Fix Rule

EXPERIMENT 4

% of Class 2: Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
20		100 (A)				
21	100 (1)					
22	100 (3)					
23	100 (2)					

% of Class 3: Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
1						
2		100 (1)				
3		100 (13)				
4		100 (1)				
5		100 (1)				
6	89 (8)	11 (1)				
7	100 (1)					
8	100 (1)					
9	73 (8)	27 (3)				
10-15						
16		100 (A)				
17	7 (3)	93 (40)				
18	11 (2)	89 (16)				
19		100 (2)				

Runway 12 closed for arrivals: Aircraft distributed according to Fix Rule

EXPERIMENT 4

% of Class 3: Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
20		100 (A)				

EXPERIMENT 4

% of Class 4: Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
1-2						
3		100 (1)				
4-8						
9		100 (1)				
10-15						
16		100 (A)				
17		100 (6)				
18		100 (4)				
19		100 (A)				
20		100 (A)				
21-23						

Runway 12 closed for arrivals: Aircraft distributed according to Fix Rule

EXPERIMENT 4

% of Class 5 (B747): Arrival Runway/Gate Distributions

GATE	RUNWAY					
	9R	9L	12	27R	27L	30
1-3						
4	22	78				
5	86	14				
6	90	10				
7						
8	100					
9-20						
21	100					
22						
23	100					

Runway 12 closed for arrivals: Aircraft distributed according to Fix Rule

EXPERIMENT 4 - CLASS 1

Arrival Fix/Runway Distributions

RUNWAY (Rwy)	LONNI (L)	OWNER (O)	FAMIN (F)	WESTO (W)	FORT LAUDERDALE (FLL)	BISCAYNE BAY (BYS)	MIAMI (MIA)	NORTHEAST QUADRANT (NE)
9R	19 (12)	42 (27)	6 (4)	33 (21)				
9L	17 (6)	33 (12)	19 (7)	31 (11)				
12								
27R								
27L								
30								

Runway 12 closed for arrivals: Aircraft distributed according to Fix Rule

EXPERIMENT 4 - CLASS 2
Arrival Fix/Runway Distributions

RUNWAY (Rwy)	LONNI (L)	OWNER (O)	FAMIN (F)	WESTO (W)	FORT LAUDERDALE (FLL)	BISCAYNE BAY (BYS)	MIAMI (MIA)	NORTHEAST QUADRANT (NE)
9R	29 (57)	23 (45)	20 (40)	25 (45)	1 (1)	1 (2)	1 (1)	
9L	44 (83)	11 (21)	4 (7)	38 (73)	2 (4)	1 (1)		
12								
27R								
27L								
30								

Runway 12 closed for arrivals: Aircraft distributed according to Fix Rule

EXPERIMENT 4 - CLASS 3
Arrival Fix/Runway Distributions

RUNWAY (Rwy)	LONNI (L)	OWNER (O)	FAMIN (F)	WESTO (W)	FORT LAUDERDALE (FLL)	BISCAYNE BAY (BYS)	MIAMI (MIA)	NORTHEAST QUADRANT (NE)
9R		12 (1)	63 (5)	13 (1)		12 (1)		
9L	25 (15)	15 (9)		44 (26)	2 (1)		5 (3)	9 (5)
12								
27R								
27L								
30								

Runway 12 closed for arrivals: Aircraft distributed according to Fix Rule

EXPERIMENT 4 - CLASS 4

Arrival Fix/Runway Distributions

RUNWAY (Rwy)	LONNI (L)	OWNER (O)	FAMIN (F)	WESTO (W)	FORT LAUDERDALE (FLL)	BISCAYNE BAY (BYS)	MIAMI (MIA)	NORTHEAST QUADRANT (NE)
9R						100 (1)		
9L	11 (1)			67 (6)			11 (1)	11 (1)
12								
27R								
27L								
30								

Runway 12 closed for arrivals: Aircraft distributed according to Fix Rule

EXPERIMENT 4 - CLASS 5 (B747)
Arrival Fix/Runway Distributions

RUNWAY (Rwy)	LONNI (L)	OWNER (O)	FAMIN (F)	WESTO (W)	FORT LAUDERDALE (FLL)	BISCAYNE BAY (BYS)	MIAMI (MIA)	NORTHEAST QUADRANT (NE)
9R	19	42	6	33				
9L	17	33	19	31				
12								
27R								
27L								
30								

Runway 12 closed for arrivals: Aircraft distributed according to Fix Rule

FILENAME - 012-101-200/MIA-DATA/EXP4/TSAMP4

AIRCRAFT SCHEDULE FOR EXPERIMENT NO. 4

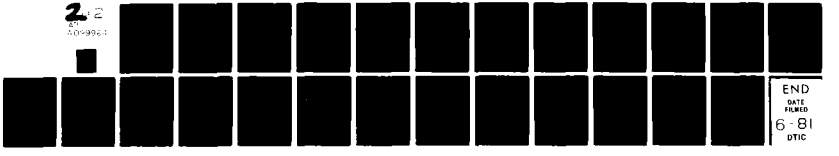
(Lateness Distribution not Applied)

IA	99	4	3	2	10	30	11	30	2	1	2	9
IA	99	6	3	2	10	30	13	0	1	1	3	9
IA	99	21	2	2	10	40	0	0	1	4	0	0
EA	99	3	3	1	10	45	11	36	2	2	2	9
EA	99	3	3	2	10	45	11	40	2	1	2	9
EA	99	3	3	2	10	48	12	5	2	2	2	9
C1	99	3	3	2	10	50	13	45	2	4	2	9
EA	99	2	3	1	10	55	12	7	1	4	2	9
IA	99	19	3	2	11	0	21	0	2	1	2	9
C1	99	9	3	2	11	0	12	40	1	1	2	9
IA	99	6	3	1	11	0	14	0	1	2	1	9
FF	99	7	3	2	11	8	12	10	1	2	1	9
EA	99	2	3	2	11	10	11	40	2	1	2	9
IA	99	6	3	1	11	10	13	40	1	2	2	9
EA	99	2	3	2	11	13	12	12	2	4	2	9
EA	99	2	3	2	11	15	11	49	2	1	2	9
FF	99	7	3	2	[illegible]	15	12	15	1	4	1	9
IA	99	4	3	2	11	15	14	0	2	4	2	9
C2	99	9	3	2	11	15	11	30	2	6	1	9
GA	99	17	2	3	11	18	0	0	2	2	0	0
IA	99	6	3	2	11	20	12	20	1	3	1	9
GG	99	7	3	1	11	20	12	30	1	3	1	9
EA	99	3	2	2	11	21	0	0	2	1	0	0
GA	99	17	2	3	11	24	0	0	2	4	0	0
GG	99	5	3	2	11	25	12	55	1	3	3	9
EA	99	2	3	1	11	26	12	45	2	2	2	9
IA	99	5	3	2	11	30	15	30	1	1	2	9
EA	99	3	3	2	11	32	13	0	2	4	2	9
EA	99	2	3	2	11	32	12	10	2	1	2	9
HH	99	9	3	2	11	35	12	25	2	1	1	9
FF	99	7	3	2	11	36	12	30	1	3	1	9
GA	99	17	2	3	11	36	0	0	2	4	0	0
EA	99	2	3	1	11	36	12	25	2	4	2	9
EA	99	2	3	1	11	36	13	25	2	1	3	9
GA	99	17	2	2	11	39	0	0	2	4	0	0
IA	99	6	3	2	11	40	14	50	1	3	1	9
GA	99	17	2	2	11	42	0	0	2	4	0	0
EA	99	3	3	2	11	45	12	45	2	1	3	9
HH	99	8	3	1	11	45	13	0	1	3	1	9
GA	99	9	2	3	11	48	0	0	1	3	0	0
HH	99	7	3	2	11	50	12	45	2	4	1	9
C2	99	9	3	2	11	50	12	0	1	1	1	9
HH	99	8	3	2	11	51	12	41	1	4	1	9
GG	99	8	3	1	11	52	13	15	1	1	1	9
C2	99	9	3	2	11	55	16	30	1	1	1	9
EA	99	3	3	2	11	55	12	25	2	4	2	9
IA	99	5	3	2	11	55	15	30	1	4	2	9
GG	99	8	3	1	11	57	13	0	1	1	1	9
HH	99	9	3	1	11	59	13	15	1	2	2	9
GA	99	17	2	3	11	59	0	0	2	8	0	0
C1	99	3	3	3	12	0	17	30	2	1	2	9
DD	99	4	3	2	12	0	12	50	2	1	2	9
IA	99	5	3	1	12	0	14	0	1	4	2	9
GG	99	8	3	2	12	2	13	30	1	2	1	9
GG	99	7	3	2	12	3	14	55	2	4	1	9
GA	99	16	2	3	12	5	0	0	2	1	0	0
FF	99	7	3	1	12	9	13	35	1	1	2	9
EA	99	2	3	2	12	10	13	10	2	3	3	9
[illegible]	99	9	3	2	12	10	13	0	1	3	1	9

AD-A099 964 FEDERAL AVIATION ADMINISTRATION TECHNICAL CENTER ATL--ETC F/G 1/2
MIAMI INTERNATIONAL AIRPORT. DATA PACKAGE NUMBER 3. AIRPORT IMP--ETC(U)
MAR 79

UNCLASSIFIED NL

2 of 2
AD-A099964



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DATE FILMED
6-81
DTIC

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EA	99	3	3	1	12	14	13	30	2	3	2	9
IA	99	5	3	2	12	15	14	0	1	2	3	9
HH	99	9	3	2	12	15	13	15	1	1	1	9
IA	99	6	3	2	12	15	13	15	2	1	1	9
HH	99	9	3	1	12	18	12	54	1	2	1	9
HH	99	9	3	2	12	20	13	10	1	1	1	9
IA	99	5	3	2	12	20	13	20	2	1	2	9
GA	99	17	2	2	12	23	0	0	2	4	0	0
HH	99	8	3	2	12	25	13	15	2	4	1	9
C1	99	9	3	2	12	25	15	45	1	2	1	9
EA	99	2	3	2	12	25	13	20	2	4	2	9
EA	99	3	3	2	12	26	13	25	2	1	2	9
HH	99	9	3	2	12	30	13	35	1	7	1	9
IA	99	6	3	2	12	30	15	30	1	1	1	9
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EA	99	2	3	2	12	37	13	30	2	4	2	9
HH	99	9	3	1	12	37	13	40	1	2	1	9
GG	99	8	3	1	12	38	13	40	1	4	1	9
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FF	99	7	3	1	12	40	13	40	1	2	1	9
HH	99	9	3	2	12	42	16	45	1	2	1	9
EA	99	2	3	2	12	44	13	35	2	4	2	9
C1	99	9	3	2	12	45	17	30	1	3	1	9
EA	99	3	3	1	12	50	13	35	1	4	2	9
IA	99	19	3	2	12	50	20	30	1	4	2	9
GG	99	8	3	2	12	55	13	45	1	4	1	9
F1	99	18	2	2	13	0	0	0	2	2	0	0
GA	99	17	2	2	13	0	0	0	2	2	0	0
IA	99	6	3	2	13	0	14	40	1	4	2	9
GA	99	18	2	2	13	4	0	0	1	4	0	0
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GA	99	17	2	3	13	12	0	0	2	4	0	0
IA	99	6	3	1	13	15	14	15	1	1	2	9
GA	99	17	2	3	13	17	0	0	2	4	0	0
IA	99	5	2	2	13	20	0	0	2	1	0	0
IA	99	4	3	2	13	20	14	35	2	2	2	9
GA	99	17	2	3	13	21	0	0	2	4	0	0
GG	99	8	3	2	13	22	15	0	1	1	1	9
GA	99	17	2	3	13	27	0	0	2	2	0	0
FF	99	6	3	2	13	30	14	20	1	4	1	9
IA	99	5	3	2	13	30	14	30	1	4	2	9
DD	99	4	3	2	13	35	14	30	2	1	2	9
IA	99	6	3	2	13	35	14	45	1	1	1	9
HH	99	8	3	1	13	37	14	20	1	2	1	9
IA	99	5	3	2	13	40	14	35	1	2	1	9
EA	99	2	3	2	13	43	16	0	1	1	3	9
GA	99	17	2	2	13	44	0	0	1	1	0	0
IA	99	5	3	2	13	45	15	15	2	1	2	9
GA	99	17	2	3	13	45	0	0	2	4	0	0
GG	99	8	3	2	13	47	17	0	1	4	1	9
GA	99	18	2	2	13	47	0	0	2	4	0	0
EA	99	2	3	1	13	53	16	15	2	3	2	9

HH	99	9	3	2	13	54	14	45	1	4	1	9
GG	99	8	3	2	13	55	15	0	1	3	1	9
IA	99	5	3	2	14	0	14	10	1	4	3	9
IA	99	6	3	2	14	5	15	0	1	2	1	9
HH	99	8	3	1	14	5	17	25	1	2	1	9
GG	99	6	3	2	14	6	15	45	1	3	1	9
EA	99	1	3	2	14	9	15	0	2	4	2	9
GG	99	8	3	2	14	12	16	15	1	2	1	9
F3	99	22	3	1	14	15	22	0	1	2	1	9
GA	99	17	2	2	14	18	0	0	2	1	0	0
F3	99	23	3	1	14	20	23	30	1	1	1	9
C1	99	3	3	2	14	20	17	50	2	4	2	9
GA	99	17	2	3	14	22	0	0	2	1	0	0
IA	99	23	3	2	14	25	17	5	1	4	1	9
GA	99	17	2	2	14	26	0	0	2	2	0	0
GA	99	17	2	3	14	26	0	0	2	1	0	0
DD	99	4	3	2	14	30	16	5	2	4	2	9
F1	99	17	2	2	14	30	0	0	2	1	0	0
IA	99	6	2	2	14	30	0	0	1	2	0	0
GA	99	18	2	3	14	33	0	0	2	4	0	0
GA	99	18	2	2	14	37	0	0	2	1	0	0
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*I	99	24	1	2	0	0	17	13	0	0	6	2
*O	99	2	1	2	0	0	17	13	0	0	6	24
GA	99	17	1	3	0	0	17	17	0	0	2	9
*P	99	7	1	2	0	0	17	19	0	0	6	12
*O	99	2	1	2	0	0	17	19	0	0	6	24
*P	99	7	1	2	0	0	17	20	0	0	6	12
EA	99	3	1	1	0	0	17	20	0	0	2	9
*O	99	2	1	2	0	0	17	21	0	0	6	24
IA	99	6	1	1	0	0	17	25	0	0	1	9
*I	99	24	1	2	0	0	17	35	0	0	6	2
GA	99	9	1	3	0	0	17	38	0	0	1	9
GA	99	17	1	2	0	0	17	39	0	0	2	9
*I	99	24	1	2	0	0	17	46	0	0	6	2
*I	99	24	1	2	0	0	17	49	0	0	6	2
*J	99	12	1	1	0	0	17	51	0	0	6	7
*J	99	12	1	2	0	0	17	53	0	0	6	7
*I	99	24	1	1	0	0	17	54	0	0	6	2
GA	99	17	1	3	0	0	17	57	0	0	2	9
*I	99	24	1	2	0	0	18	0	0	0	6	2
EA	99	2	1	1	0	0	18	0	0	0	2	9
IA	99	4	1	2	0	0	18	0	0	0	2	9
*I	99	24	1	2	0	0	18	2	0	0	6	2
GA	99	19	1	3	0	0	18	2	0	0	2	9
*P	99	7	1	1	0	0	18	5	0	0	6	12
*J	99	12	1	2	0	0	18	6	0	0	6	7
*O	99	2	1	2	0	0	18	6	0	0	6	24
*I	99	24	1	1	0	0	18	13	0	0	6	2
*J	99	12	1	2	0	0	18	16	0	0	6	7
GA	99	17	1	3	0	0	18	17	0	0	2	9
GA	99	17	1	3	0	0	18	31	0	0	2	9
*P	99	7	1	2	0	0	18	33	0	0	6	12
*I	99	24	1	2	0	0	18	33	0	0	6	2
GA	99	17	1	2	0	0	18	34	0	0	3	9
*I	99	24	1	2	0	0	18	38	0	0	6	2
*O	99	2	1	2	0	0	18	38	0	0	6	24
*O	99	2	1	2	0	0	18	44	0	0	6	24
*I	99	24	1	2	0	0	18	53	0	0	6	2
GA	99	19	1	2	0	0	18	58	0	0	2	9

Attachment I

MIAMI DELAY EXPERIMENTS
STAGE 2
(REVISED)

Miami International Airport

Miami
Airport Improvement Task Force Delay Studies
March 1979

TABLE 9
MIAMI DELAY EXPERIMENTS*
STAGE 2

Experiment Number	Model	Study Case[a]	Arrival Runways	Departure Runways	Weather	Demand	ATC System Scenario[b]	Near-term Improvements[c]
19	ASM[d]	3	27L, 27R	27L, 27R, 30	VFR2	Pre-1985	Pre-1985	Pre-1985[e]
22	ASM	1	9L, 9R, 12	9L, 9R, 12	VFR1	Pre-1985	Pre-1985	Pre-1985[e], 25% less G.A.[g]
23	ASM	1	9L, 9R, 12	9L, 9R, 12	VFR1	Pre-1985	Pre-1985	Pre-1985[e], 75% less G.A.[g]
24	ASM	5	27L, 27R	27L, 27R	IFR1	Todays	Todays	6[i]
25	ASM	2	27L, 27R, 30	27L, 27R, 30	VFR1	Pre-1985	Pre-1985	Pre-1985[k]+overflow parking[j]
16	ADM[h]	n.a.	n.a.	n.a.	n.a.	Todays	Todays	Todays
26	ADM	n.a.	n.a.	n.a.	n.a.	Pre-1985	Pre-1985	Pre-1985[e]
27	ADM	n.a.	n.a.	n.a.	n.a.	Pre-1985	Pre-1985	None
28	ADM	n.a.	n.a.	n.a.	n.a.	Pre-1985	Todays	Pre-1985[e]
29	ADM	n.a.	n.a.	n.a.	n.a.	Pre-1985	Todays	None
30	ADM	n.a.	n.a.	n.a.	n.a.	Post-1985	Post-1985	None
31	ADM	n.a.	n.a.	n.a.	n.a.	Post-1985	Post-1985	Post-1985
32	ADM	n.a.	n.a.	n.a.	n.a.	Post-1985	Todays	Post-1985
33	ADM	n.a.	n.a.	n.a.	n.a.	Post-1985	Todays	None

[a] Study cases are defined in Figure III-1 of the Miami International Airport Technical Plan (October 1978).

[b] FAA will describe impact of pre-1985 and post-1985 ATC systems on model inputs (as per report No. FAA-EM-78-8A).

[c] Potential near-term improvements are identified in Appendix B of the Miami International Airport Technical Plan.

[d] Airfield Simulation Model.

[e] Task Force has provided a package of near-term runway/taxiway improvements over and above items 1 2, and 3 as identified in Appendix B of the Technical Plan. Improvement items 4, 6, 7, 8, and 10 as identified in Appendix B are also modeled in these experiments. Task Force will establish a package of improvements most likely to be implemented in the post-1985 time frame.

[g] Reduction in general aviation achieved by upgrading Opa Locka and Tamiami General Aviation Reliever Airports.

[h] Annual Delay Model.

[i] Improvement #6 is the use of 2 mile in-trail staggered parallel approaches.

[j] Improvement #8 is the overflow parking positions within the terminal area.

[k] All improvements of footnote "e" except for improvement #8.

* Stage 2 experiments as revised by the Miami Delay Studies' Task Force on 1/24/79.

Attachment J

AIRFIELD SIMULATION MODEL
INPUT DATA SUMMARY
STAGE 2 EXPERIMENTS

Miami International Airport

Miami
Airport Improvement Task Force Delay Studies

March 1979

MIA - STAGE 2

EXPERIMENT NO. 19

Objective:
To assess delays to aircraft in 1983 for the following runway configuration under VFR2 conditions, assuming the Miami near-term airport improvements and the improved (pre-1985) ATC system scenario:

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
27L, 27R	27L, 27R, 30

Related Comparison Experiments:
Prior experiment 17 serves as the 1983 demand level baseline for comparison to this experiment. Prior experiment 12 examines an alternative runway configuration under the same demand/scenario conditions of this experiment.

Remaining Data Items:

- 1983 demand input distribution; short takeoff on runway 30 accommodated by runway 30A in the model.
- Route data and exit taxiway utilization for 27R, 27L, and 30 improvements.

Experiment Number: 19 (Input changes from experiment number 17)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
A. Logistics	
1. Title	
2. Random number seeds	
3. Start and finish times	
4. Print options	
5. Airline names	
6. Processing options	
7. Truncation limits	
8. Time switch	
B. Airfield Physical Characteristics	Configuration "B" (Westerly)
9. Airfield network	
10 Number of runways	
11. Runway identification	Additional runway 30A to accommodate
12. Departure runway and links	short takeoff, improvement #3.
13. Runway crossing links	
14. Exit taxiway location	
15. Holding areas	
16. Airline gates	
17. General aviation basing areas	
C. ATC Procedures	
18. Aircraft separation	Improvements #6 and #7
19. Route data	Improvements #1, #3, and #8
20. Two-way path data	
21. Common approach paths	
22. Vectoring delays	
23. Departing runway queue control	
24. Gate hold control	
25. Departure airspace constraints	
26. Departure queue	
27. Runway crossing delay control	
D. Aircraft Operational Characteristics	
28. Exit taxiway utilization	Improvement #1
29. Arrival runway occupancy times	
30. Touch-and-go runway occupancy times	
31. Departure runway occupancy times	
32. Taxi speeds	
33. Approach speeds	
34. Gate service times	
35. Airspace travel times	
36. Runway crossing times	
37. Lateness distributions	
38. Demand - Demand input distribution (Departure including B747 permitted on runways 30 and short takeoff on 30A).	

MIA - STAGE 2

EXPERIMENT NO. 22

Objective:
To assess delays to aircraft in 1983 for the following configuration under VFR1 conditions, assuming that the upgrading of Opa Locka and Tamiami reliever airports has affected a 25-percent reduction in G. A. traffic at Miami.

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
9L, 9R, 12	9L, 9R, 12

Related Comparison Experiments:
Prior experiments 11 and 14 model a zero-percent and 50-percent reduction in G. A. traffic under identical conditions as this study case.
Experiment 23 models a 75-percent reduction in G. A. traffic.

Remaining Data Items:

eriment Number: 22 (Input changes from experiment number 11)

IMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
ogistics	
. Title	
. Random number seeds	
. Start and finish times	
. Print options	
. Airline names	
. Processing options	
. Truncation limits	
. Time switch	
irfield Physical Characteristics	Configuration "A" (Easterly)
. Airfield network	
Number of runways	
. Runway identification	
. Departure runway and links	
. Runway crossing links	
. Exit taxiway location	
. Holding areas	
. Airline gates	
. General aviation basing areas	
C Procedures	
. Aircraft separation	
. Route data	
. Two-way path data	
. Common approach paths	
. Vectoring delays	
. Departing runway queue control	
. Gate hold control	
. Departure airspace constraints	
. Departure queue	
. Runway crossing delay control	
rcraft Operational Characteristics	
. Exit taxiway utilization	
. Arrival runway occupancy times	
. Touch-and-go runway occupancy times	
. Departure runway occupancy times	
. Taxi speeds	
. Approach speeds	
. Gate service times	
. Airspace travel times	
. Runway crossing times	
. Lateness distributions	
. Demand	25% less General Aviation

MIA - STAGE 2

EXPERIMENT NO. 23

Objective:
To assess delays to aircraft in 1983 for the following configuration under VFR1 conditions, assuming that the upgrading of Opa Locka and Tamiami reliever airports has affected a 75-percent reduction in G. A. traffic at Miami.

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
9L, 9R, 12	9L, 9R, 12

Related Comparison Experiments:
Prior experiments 11, 14, and 22 model a zero, 50, and 25-percent reduction in G. A. traffic under identical conditions as this study case.

Remaining Data Items:

Experiment Number: 23 (Input changes from experiment number 11)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
A. Logistics	
1. Title	
2. Random number seeds	
3. Start and finish times	
4. Print options	
5. Airline names	
6. Processing options	
7. Truncation limits	
8. Time switch	
B. Airfield Physical Characteristics	Configuration "A" (Easterly)
9. Airfield network	
10 Number of runways	
11. Runway identification	
12. Departure runway and links	
13. Runway crossing links	
14. Exit taxiway location	
15. Holding areas	
16. Airline gates	
17. General aviation basing areas	
C. ATC Procedures	
18. Aircraft separation	
19. Route data	
20. Two-way path data	
21. Common approach paths	
22. Vectoring delays	
23. Departing runway queue control	
24. Gate hold control	
25. Departure airspace constraints	
26. Departure queue	
27. Runway crossing delay control	
D. Aircraft Operational Characteristics	
28. Exit taxiway utilization	
29. Arrival runway occupancy times	
30. Touch-and-go runway occupancy times	
31. Departure runway occupancy times	
32. Taxi speeds	
33. Approach speeds	
34. Gate service times	
35. Airspace travel times	
36. Runway crossing times	
37. Lateness distributions	
38. Demand	75% Less General Aviation

MIA - STAGE 2

EXPERIMENT NO. 24

Objective:

To assess the delay impact to aircraft of using 2 mile in-trail staggered parallel approaches for the following runway configuration under IFR1 conditions and 1978 demand:

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
27L, 27R	27L, 27R

Related Comparison Experiments:

Prior experiment 5 serves as the 1978 demand level baseline for comparison to this experiment, wherein the conditions of this study case were identical except for the 2 mile in-trail staggered approach.

Remaining Data Items:

Experiment Number: 24 (Input changes from experiment number 5)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
A. Logistics	
1. Title	
2. Random number seeds	
3. Start and finish times	
4. Print options	
5. Airline names	
6. Processing options	
7. Truncation limits	
8. Time switch	
B. Airfield Physical Characteristics	Configuration "B" (Westerly)
9. Airfield network	
10 Number of runways	
11. Runway identification	
12. Departure runway and links	
13. Runway crossing links	
14. Exit taxiway location	
15. Holding areas	
16. Airline gates	
17. General aviation basing areas	
C. ATC Procedures	
18. Aircraft separation	Modified to include 2 mile in trail
19. Route data	staggered approach.
20. Two-way path data	
21. Common approach paths	
22. Vectoring delays	
23. Departing runway queue control	
24. Gate hold control	
25. Departure airspace constraints	
26. Departure queue	
27. Runway crossing delay control	
D. Aircraft Operational Characteristics	
28. Exit taxiway utilization	
29. Arrival runway occupancy times	
30. Touch-and-go runway occupancy times	
31. Departure runway occupancy times	
32. Taxi speeds	
33. Approach speeds	
34. Gate service times	
35. Airspace travel times	
36. Runway crossing times	
37. Lateness distributions	
38. Demand	

MIA - STAGE 2

EXPERIMENT NO. 25

Objective:
To assess the delay impact to aircraft in 1983 of overflow parking positions within the terminal area for the following runway configuration under VFR1 conditions:

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
27L, 27R, 30	27L, 27R, 30

Related Comparison Experiments:
All other Stage 1 and Stage 2 experiments listed in Tables 2 and 9 include overflow parking as an improvement item. No other experiment directly compares to this study case as a result.

Remaining Data Items:

- It is suggested that two options are available to rectify this situation:

  1) Add a new Stage 2 experiment which duplicates all other conditions of this study case except for overflow parking, or

  2) Since overflow parking has been included in the overall improvement package for all other 1983 improvement runs (Experiments 11, 14, 21, 12, 15, 20, 19, 22, and 23), eliminate this experiment.

- Based on the above, a change-sheet for this experiment has not been included.

Attachment K

PRELIMINARY ANNUAL DELAY BASELINE DATA PACKAGE

Miami International Airport

Miami
Airport Improvement Task Force Delay Studies
March 1979

1. Annual Demand: 346,384 (FY-78)

2. Group Specification:

3 day groups	:	High, Average, Low
12 week groups	:	12 months, October through September
2 weather groups	:	VFR, IFR1 (No IFR2 conditions)

2 runway uses	:	Arrivals Runway	Departures Runway
	1.	9R, 9L, 12	9R, 9L, 12
	2.	27R, 27L, 30	27R, 27L, 30

3., 4. Traffic Distribution: (FY 1978 Tower Count)

Week Group	1978 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	1977 Oct	Nov	Dec
% of annual in one week	1.95	2.03	2.14	2.04	1.87	1.72	1.92	1.93	1.86	1.72	1.86	1.97
Number of weeks in month	4.43	4.00	4.43	4.29	4.43	4.29	4.43	4.43	4.29	4.43	4.29	4.43
% of annual in month	8.64	8.12	9.48	8.75	8.28	7.39	8.50	8.53	7.98	7.64	7.98	8.71

5., 6. Daily Traffic Distribution: (March 1978, combined 2-week period 3/12/78 to 3/25/78)

Day Group	High	Average	Low
% of weekly in one day	15.74	14.30	12.81
Number of days	2	3	2
% of weekly traffic in day group	31.47	42.90	25.63

7. Weather Occurrences:

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
%VFR	97.27	96.15	95.78	97.95	99.75	98.97	100.00	99.75	99.74	99.75	99.23	99.75
%IFR1	2.73	3.85	4.22	2.05	0.25	1.03	0.00	0.25	0.26	0.25	0.77	0.25

8. Hourly Runway Capacity Parameters:

Runway Use	Hourly Capacity (Operations/hour) VFR	IFR1	
1	101	93	(To be verified by rerunning Capacity Model)
2	117	90	

9. Runway Use/Weather Group Demand Factors:

For all runway uses:

Weather VFR	IFR1
1.0	1.0

10. Runway Use Occurrences:

Runway Use	Percent Occurrence VFR	IFR1
1	72.13	27.41
2	27.87	72.59
	100.00	100.00

11. Hourly Traffic: (March 16, 1978)

Hour	%daily traffic	Hour	%daily traffic	Hour	%daily traffic	Hour	%daily traffic
00-01	3.7	06-07	1.4	12-13	2.5	18-19	8.4
01-02	4.4	07-08	1.5	13-14	5.9	19-20	6.4
02-03	2.7	08-09	0.4	14-15	5.7	20-21	7.5
03-04	4.1	09-10	0.8	15-16	2.8	21-22	9.4
04-05	2.0	10-11	1.3	16-17	7.4	22-23	4.8
05-06	3.6	11-12	2.1	17-18	4.5	23-24	6.7

12, 13. Delay Curve Specification: To be determined after airfield simulation runs.

14. Percent Arrivals:

Hour	%Arrivals	Hour	%Arrivals	Hour	%Arrivals	Hour	%Arrivals
00-01	54.8	06-07	62.5	12-13	17.9	18-19	47.9
01-02	62.0	07-08	64.7	13-14	27.3	19-20	36.1
02-03	63.3	08-09	20.0	14-15	23.4	20-21	60.7
03-04	26.1	09-10	0.0	15-16	61.3	21-22	59.4
04-05	82.6	10-11	60.0	16-17	70.7	22-23	40.7
05-06	68.3	11-12	29.2	17-18	60.8	23-24	52.0

15. Cancellation Diversion Specification: To be provided by Task Force.

16. User-Specified Title: MIA ANNUAL BASELINE

Attachment L

MIAMI STAGE 2 ANNUAL DELAY MODEL EXPERIMENTS
GENERAL OVERALL ASSUMPTIONS

Miami International Airport

Miami
Airport Improvement Task Force Delay Studies
March 1979

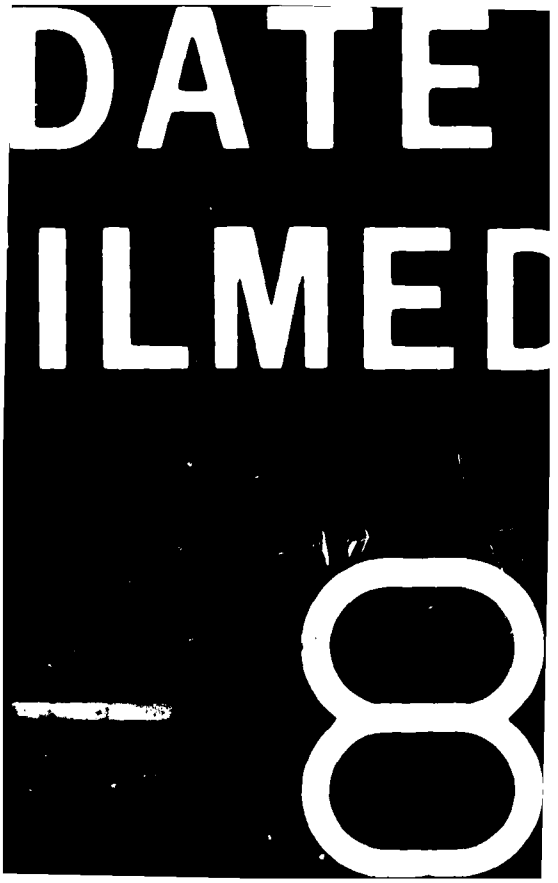
STAGE 2 ANNUAL DELAY MODEL EXPERIMENTS
GENERAL OVERALL ASSUMPTIONS

1. Aircraft separations (arrival-arrival, departure-departure, etc.) from Report No. FAA-EM-78-8A will be used (near-term for 1983 and far-term for post-1985) in all ANNUAL DELAY MODEL experiments except when otherwise specified by the Task Force.

2. The 1978 hourly distributions of traffic, percent arrivals, and heavy aircraft will be applied, proportionately, to distribute the future forecasts, which will be in terms of average-day, peak-month operations. Any changes in aircraft mix (e.g., percent wide body) must be agreed upon and provided by the Task Force.

3. FAA forecasts of general aviation, commuters, scheduled air carriers and overseas airline operations will be used in all ANNUAL DELAY MODEL experiments unless otherwise specified by the Task Force.

4. All of the airfield network improvements currently provided to NAFEC are assumed in place by 1983. The post-1985 improvement package is yet to be submitted to NAFEC.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